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ANGLO-AMERICAN CO-OPERATION

By GEORGE BRONSON REA

A CURB ON PROPAGANDA

THE SITUATION IN SHANGHAI

Vol. XXXI

SEPTEMBER, 1935

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Anglo-American Co-operation

Why Not Include Japan?

By GEORGE BRONSON REA

*"Sack—Sack—Sack—ville—West
He's Got Grover Cleveland in the Pocket of his Vest"*

* * *

To the cadence of the above words shouted by thousands of Republican Clubs marching in torchlight processions an American President nearly went down to defeat in the election of 1892. It was alleged that Cleveland permitted the British Minister (Lord Sackville West), to dictate his foreign policy and the Republicans, seeking a campaign issue, demanded that he be given "the sack." The charge was not true, but it smeared Cleveland, made good campaign doggerel and swung the Irish vote. The deep-seated hostility to Great Britain, a legacy of the Revolution, of 1812 and the Civil War, revived by the Venezuelan incident, was capitalized for purely party political purposes and it went over.

Much water has run under the bridges since 1892 and old distrusts and animosities have given place to a friendlier attitude and a better understanding and appreciation of British problems. The World War and the subsequent experiences of the American people with the devious ways of European politics and handling of the war debts has however, warned even the most ardent anglophile of the danger and unprofitableness of too intimate an association that may lead the Nation into further adventures to make the world safe for democracy and uphold any of the other sacred and high-sounding principles invariably invoked to conceal the more practical aims of European statesmanship. The American people have learned a costly and much needed lesson and their old conception of having been singled out by the Almighty to reform and regenerate the world is slowly giving place to a better and more sensible appreciation of their proper rôle and place in international affairs. The uplifters and busybodies are still active and vocal but the vast majority have become convinced that their future, peace, happiness and security can be best assured and preserved by relying on their own resources and military preparedness. The American fighting services realize that they have all they can do to extract from an apathetic congress the appropriations for the equipment that will enable them adequately to maintain their supremacy in their own natural sphere.

A Shifting Viewpoint

Little by little the truth is being brought home to thinking Americans that they have been deceived by Europe through the gullibility of inexperienced statesmen accepting at their face value ideals which sugared the pill of imperialistic diplomacy. In the last two decades the historians have unearthed facts which cause us furiously to think. It has been shown that Lord Canning gave us the Monroe Doctrine. John Hay returned from his tour of duty as American Minister to the Court of St. James with the Open Door Doctrine in his pocket and, despite the fact that it was twice turned down by the President, Hay finally incorporated it into international law as a cardinal principle of American diplomacy with special application to China. Smuts and Lord Phillimore prepared

the plan for the League of Nations. "Wilson swallowed it whole and the League as propounded was really a British production although fathered by President Wilson."

Lloyd George conceived the idea of the Washington Conference and passed it on to Harding and Hughes, who took the credit. James T. Shotwell, a Canadian, and trustee for the Carnegie Endowment for International Peace, put into Briand's ear the bug of the Peace Pact and the astute French statesman initiated the correspondence, with the American Secretary of State that terminated in a multilateral treaty officially known as the Peace Pact of Paris. It was ratified in Washington and the United States became sponsor for its faithful observance. It is now called "the Kellogg Pact," the keystone of American diplomacy.

The record discloses that every major doctrine the American nation is committed to uphold originated in Europe. The warnings of the Fathers to remain free from entangling alliances have been unheeded and we now find ourselves enmeshed in a network of treaties and understandings obligating us morally if not legally to maintain the post-war *status quo* to as great an extent as though we had joined the League of Nations. We voluntarily committed ourselves to respect the territorial integrity of China and Soviet Russia; the Monroe Doctrine imposes upon us the task of defending the other American nations against outside aggression. All that was lacking to complete our messianic rôle of world Savior was an understanding that would bind us to come to the assistance of France and Great Britain.

Efforts that Failed

The campaign to bring this about has been in full swing for many years. It is superfluous to follow its progress after the Peace of Versailles through the stages which led up to the Washington Conference and to the breakdown of American diplomacy in the Manchurian incident. Stimson's co-operation with the League through the Kellogg Pact had as its only practical result the adoption by that body of the Non-Recognition Doctrine, the last resort of a world which feared to invoke sanctions that inevitably would have led to war. American recognition of Russia followed in the hope that pressure might be brought to bear upon Japan from that quarter, but when it became apparent that this would call for financing Russia's war preparations and Senator Johnson spiked any possibility of lending money to nations which had repudiated or defaulted their debts to the United States, it left us out on the end of a limb. The plan was then formed to railroad the United States into the League, but the vote on the World Court compelled its abandonment. There was nothing to fall back on but Anglo-American co-operation.

The latest phase of the movement was given a fresh impetus last summer when ex-Secretary of State Stimson visited England and there publicly declared that the United States was anxious and willing to join the League. Whether he spoke for himself or the Administration has not been divulged but the fact that he is retained as a special adviser to the President on Far Eastern affairs would indicate that he faithfully reflected the policy of the

Government. The British apparently accepted it as such and selected Lord Lytton, their most distinguished and experienced propagandist, to return the visit and deliver a series of lectures advocating America's entrance into the League and closer unity with Great Britain. The plan of action seems to have been carefully prepared. The United States became a member of the International Labor Bureau last summer and was to have joined the World Court in January. By March, when Japan's withdrawal from the League became effective, everything was to have been in readiness for our entrance into the League. Senator Pope revealed that the State Department had drafted the necessary resolutions in preparation for this step. With Soviet Russia and the United States on the League Council and an American jurist on the World Court, the next step would have been the application of sanctions to enforce the League verdict against Japan. Had not the "Old Guard" in the Senate, supported by Hearst and Father Coughlin, defeated the vote on the World Court, the United States would have been in the League by March and at war with Japan within six months.

Those Lofty and Costly Ideals

With the American fleet so far below its treaty strength that it will require eight years to build up to its quota and with the British fleet tied up in Europe, it left the United States holding the bag in the Pacific. Faced with the prospect that Japan might further extend her influence in China, the campaign to bring about Anglo-American co-operation in the Far East has been pushed with redoubled vigor. The appeal for unity is based, not on political grounds, but in accordance with the instinctive feelings and convictions of the peoples of the United States on the one hand and the British Commonwealth of Nations on the other. "*The alliance will not be written into formal protocols but will be based on the deeper strata of our common outlook on the world, on the love of justice and our hatred of war, on our passion for freedom and an abhorrence of oppression.*" Such was the carefully worded appeal to American sentiment by the advocates of the movement.

The Marquis of Lothian in an article in the *Christian Science Monitor* expressed the idea in the following words ;

"The movement toward international integration though ultimately inevitable, must certainly be painfully slow. Indeed, I think it is true that it cannot take place until a basis of agreement as to how peace and prosperity are to be maintained, both for themselves and the democratic world, is reached between Great Britain and the United States. What is more needed in the world to-day is sane leadership and it is certain that that leadership can only come from the western democracies which front on the great oceans of the globe and between them control the seaways of the world. At the moment both nations seem apathetically to acquiesce in an omnipotent and self-regarding nationalism which is leading mankind back to poverty and to war. But unless all hopes which have been pinned on democracy is the past are to be falsified, it is only a question of time for the leadership to arise which will point the way toward a new and better world order. When that time comes the United States and the British Empire will be among the first of its followers."

Mr. Stanley Baldwin, Prime Minister of England, declared in a speech that joint British and American action could guarantee peace in any part of the world and that no forces would be able to stand against the combined naval and military strength of Britain and America and the economic sanctions they would be able to apply. Anthony Eden, Lord Privy Seal, echoed the sentiments of his chief by declaring "that friendship with the United States is of the first importance. It exists to-day and it will grow ; and everything that we can do to promote that friendship will be readily and eagerly done." But the experienced and practical British statesmen qualified their assertions by stating their belief that such collaboration might not come for a hundred years and, that it might never come.

The British Way

Lord Beaverbrook, publisher of two large London newspapers wrote a series of editorials on the theme and put out *ten million* copies of a pamphlet entitled "*From Across the Atlantic Comes this Tremendous Message.*" That is the way the British handle their propaganda. Should the Japanese flood the United States with a

similar number of counter propaganda pamphlets advocating American-Japanese co-operation to guarantee a lasting peace in the Pacific it would probably be denounced as a piece of impertinence. The French Government may appropriate the equivalent of five million dollars for foreign propaganda (in the United States) and the British in their way may expend an equal or even greater sum, but should the Japanese resort to similar methods even in a very modest way they would never hear the end of it. Yet it is worth trying. It might have beneficial results.

The "*tremendous message*" calling upon America to "stand alongside Great Britain in this crazy world" is simply another way of asking us to join our fortunes with a nation that has had a stake in every European war of modern times, a nation whose far flung Empire makes her a party to every impending struggle from the Far East to the front against Germany, a nation that is nervously seeking to uphold the League and preserve the balance of power that is her only safeguard. It is a plan that looks for trouble and it will start right here in the Far East.

The British overtures however failed to arouse public sentiment in the United States. Aside from a small group of interested publicists and intellectuals, the ever present Chinese sympathizer and a few big navyites, the plan which, in its last analysis, calls for military or naval action in Europe or the Far East, is not taken seriously. Despite the urging of such writers as Nathaniel Peffer, who advocates an alliance with Great Britain to maintain the Open Door in China, the American public with the trade returns before them, can never be convinced that the China market is now or ever will be worth fighting for. Myth of huge trade profits by the maintenance of the Open Door in China has been dispelled by a study and analysis of the statistics and striking a balance sheet of our foreign commerce. Even a rough calculation shows that the United States is out-of-pocket a billion dollars in its trade with China alone in the last fifteen years and now that the present administration by its silver policy is busily engaged in destroying what little market there is left for American goods in China, only a humorist would suggest that we must ally ourselves with Great Britain to fight for our right to remain in business as an eleemosynary institution.

But there is always a ready answer even to this. We still have our open door enthusiasts who insist that we must go to war now, at once, immediately, if not sooner, to win the everlasting friendship of these 500,000,000 prospective customers whose gratitude will find expression in a flood of orders for all kinds of American products which will keep our factories going full blast. They point out, if the Chinese add only one inch to the tails of their shirts it would keep all the cotton mills operating overtime to fill the order. If every Chinese would eat a prune a day or learn to put a handful of raisins in their chow, there would be a market for 178,000,000,000 prunes and a few trillion raisins and the California fruit growers would revel in wealth and prosperity. These astronomical figures are never omitted to convince and impress the rube reader for whose edification they are compiled. The formula has been worked out from every angle in order to mesmerize the most skeptical into believing that the future happiness and prosperity of the American people is bound up exclusively with the fate of China.

What the Figures Tell

The actual figures of our China trade disclosing what it all means in dollars and cents, tells us however exactly where this sort of trade promotion is likely to lead us. The whole argument is a joke, an absurdity. Now that we are getting out of the Philippines there is no commercial stake in the Far East worth allying ourselves with Britain to defend. There remains only one justification for such co-operation and that is, the maintenance of the balance of power. The Washington treaties sought to do this by collective action but the balance simply would not balance. China refused to stay put as a known quantity while Russia put her paw on the scales and said "this is a fine machine; it was made for me ; it is mine, presented to me by my great and good friends in Washington and I will determine the weights and regulate the balance." In effect, the scales devised to create a proper balance to keep Japan in her place, simply handed over control of Asia to Soviet Russia and conceded a charter of license to China to do as she pleased. Japan was caught in a treaty trap, unable to defend herself while Russia proceeded to amputate Mongolia from China and extend her acquisitive operations to South China and the Yangtze Valley. This was all according to Hoyle. The rules of the game laid down at Washington

conceded to Russia this privilege and the other players dared not protest, let alone interfere. In sheer desperation, Japan finally broke out of the trap, lifted the paw of the Bear from the balance and with both feet planted squarely on the scales says in no uncertain words that in future there will no balance of power in this part of the world. She announces that Asia belongs to the Asiatics; that the older and younger brothers of a common race, culture and civilization will henceforth stand together and face the Western world in a determined effort to survive in the struggle for existence now upon them. Any attempt on the part of America and Britain or any other combination of Powers to force Japan back into the trap will precipitate a showdown that can have only one ending.

In a recent article, Frank H. Simonds draws attention in the following words to the implication of British policy concealed behind this campaign;

"The British have launched a new campaign of propaganda in the United States. Where in 1914 it was asserted that the duty of the American people to democracy made their participation in the World War as an ally of Great Britain inescapable, they are now arguing that a duty to world peace requires us to take a similar stand to-day. As yesterday, we fought to make the world safe for democracy and incidentally to help defeat the German threat to Britain, so to-day we should act to serve the cause of world peace and thus incidentally to protect British interests in East Africa.

"Now the American people ought to see very clearly what the actual situation is. It is natural enough for the British to believe that whenever they are threatened the cause of democracy or of world peace is similarly menaced. It is instinctive for them to see their own interests as identical with right and justice and to discover a responsibility and duty impelling the American people to support them whenever they are in trouble. But it is just as essential that the American people should perceive for the future exactly whither all this sort of thing leads.

"If the cause of democracy, like that of world peace is dependent upon the preservation of the territorial integrity of the British Empire then it follows naturally that the United States should be prepared to support the British whenever their position is challenged by a rival imperialism; either Italian, or German and whether in Africa or Europe. The job thus to be undertaken, however, promises to prove considerable, because within the British Empire has been assembled upwards of one quarter of the territory of this planet. And inevitably less fortunate nations notably the Germans, the Italians and the Japanese—are bound in the future to challenge the fairness of this division."

Just so. Mr. Simonds merely brings up to date the thoughts of the writer expressed earlier in the year in a book entitled, "The Case for Manchoukuo" in which he stressed the importance of this movement to clarify a situation in which the United States would be called upon to defend British imperial interests in all other parts of the world in exchange for British support to our Far Eastern policies. While Mr. Simonds' assumptions in the particular case of Italy may have been disposed of by the rapid march of events, the major postulate still survives as a question that is more and more claiming the attention and study of all thoughtful Americans. It goes without saying that the older group of Americans of Anglo-Saxon descent, retain that sense of kinship, of friendly and sympathetic understanding and if needs be, the obligation to render material assistance should Britain be cornered and forced to fight for her life. The call of the blood, the bond of a common language, culture, civilization and ideals will always find this element aligned with Britain in her hour of need.

Other Factors Now Present

But the day is past when this spirit can be written into an understanding, official or implied. The old Anglo-Saxon breed is no longer dominant. A new type, tracing its origins to other European sources has come out of the melting pot and must be reckoned with. It has no love for England. The progeny of the Puritans who emigrated largely from England has long since lost its influence in national affairs. The Catholic Irish group is still hostile to England. The Scotch-Irish element retains unimpaired its high ideals and principles and is willing to fight for them, but although it deeply sympathizes with the British, it entertains no illusions about

British imperial policy or where co-operation with Britain will lead it. The plea for unity based on the conservation of democratic ideals, love of peace, abhorrence of oppression and restoration of world prosperity, is merely ringing the changes on the propaganda arguments that lured the United States into the World War. That one experience and its aftermath of the past sixteen years has done more to weld the heterogeneous racial groups in the United States into a harmonious national whole than all the sacred ideals of democracy, of liberty, of love of peace and the many other shibboleths hitherto advanced as the reason for American unity.

Americans of all classes and of whatever origin have learned well the lesson of the World War. Never again will an American army fight in Europe. Under no conceivable circumstances will our young manhood cross the Pacific to defend the integrity of Soviet Russia, to make Asia safe for Communism or to uphold the Open Door and its corollary, the territorial and political integrity of China. Those who direct the affairs of the Nation may adhere to and proclaim the Peace Pacts as the foundation of our foreign policy and the people of the United States will endorse this stand, but should they attempt to plunge the country into war to defend abstract principles which translated into practical politics means the preservation of the British Empire, the integrity of China or Soviet Russia or the protection of any other imperial or colonial power, they would be swept out of office on a wave of popular indignation.

It is quite possible and probable that the still influential Anglo-Saxon group controlling the press and media for propaganda in the United States may again succeed in influencing public opinion to unite with Great Britain for the preservation of democratic ideals, but in the present temper of the American people, such a course would be fraught with great danger. It might even result in the complete overthrow of democracy in the United States. On the other hand any Anglo-American understanding of this nature would irrevocably commit the nation to uphold policies originating in Europe and perpetuate by force many of the world's greatest injustices.

What is a Treaty?

The advocacy of Anglo-American co-operation by representative intellectuals in their respective countries, discloses a mental outlook on right and wrong that bodes no good for world peace. We are asked to stand shoulder to shoulder with the British to uphold the sanctity of treaties which Japan is alleged to have broken; but what is a treaty? Is it not a contract between nations in which each contracting party pledges itself to discharge certain stipulated obligations? Is there any fundamental or legal difference between a purely political treaty and any other formal contract between governments? Can a legal distinction be drawn between the political obligation and the war loan agreements entered into between the Allied Powers and the Government of the United States? One, the Nine Power Treaty, was merely the expression of a pious hope, a declaration of policy, with no sanctions or penalty implied or intended, while the others were solemn and legal promises to pay debts running into billions of dollars. Yet brilliant legal minds on both sides of the Atlantic place the sanctity of the political pledge above the promise to pay. The contracts which directly affect the pocket of the American tax-payer and throws upon him the burden of paying the costs of the World War are subordinated to a policy designed and written into international law for the sole and special benefit of another nation and which, if enforced, would plunge the United States into another war and the piling up of further billions of debts. American champions of co-operation with Britain are therefore placed in the position of advocating an alliance with a nation which has suspended the payment of its obligations pending a revision of the debt contract in order to punish or bring pressure to bear on another nation, which, for equally sound reason, has felt compelled in sheer self defense to break out of an agreement that was hampering its right to exist. On the other hand, with the exception of little Finland, Japan is the only nation in the world that has never defaulted on her promise to pay. If her bond is good in financial matters, can she not also be trusted to keep her political pledges? American critics of Japan overlook this admirable quality and to gain international support for the peace pacts rush into the arms of those who have failed to discharge their financial obligations seeking co-operation against the political defaulter! It is a curious paradox, revealing a state of mind inconsistent with any conception of international justice.

Yet the campaign to cast our lot with Britain as the only sure guarantee for world peace and the preservation of democratic institutions, gathers momentum. The inducement held out to the United States is joint action in the Far East, an unworkable alliance that could never be carried into practical operation. All authorities on sea-power are unanimous in the opinion that it would require a navy three times larger than Japan's to assume the offensive and carry a war into her home waters. Under the present naval set-up, this means the combined American and British fleets with no reserves for home defense.

If it will require eight years of steady building for the United States to catch up with her treaty quota and the situation in Europe calls for the continued presence of the British fleet in home and Mediterranean waters, Anglo-American co-operation simmers down to the United States defending Britain's lines of communication in the event of hostilities, leaving Japan in complete mastery of Eastern Asia until such time in the future as joint Anglo-American pressure can safely be brought to bear upon her. The United States must engage in a staggering ship-building program to hold her position in such a partnership, with the possibility that we might have to double the size of our fleet.

More Pertinent Figures

And for what? American investments in China total roughly \$230,000,000, of which \$80,000,000 is missionary and educational and the balance, \$150,000,000, commercial. We export to China a yearly average of \$100,000,000 in raw and manufactured products. Of this, fifty percent represents oil, tobacco and raw cotton, three commodities which Japan does not produce. We do not have to go to war with Japan to conserve this business. Within ten years, China will be producing her own cotton and tobacco and before that time the exhaustion of our oil reserves will compel Congress to enact legislation prohibiting the further export of petroleum and its products. Twenty-five to thirty percent of our exports to China is what the Japanese buy from us for their own enterprises in that country. The Open Door, reduced to dollars and cents, means a trade of \$25,000,000 in iron and steel, automobiles, machinery, odds and ends, etc. A war for the preservation of the China market is not worth the life of one American soldier or sailor.

There is another side to this picture. The British stake in China is approximately \$1,750,000,000, eleven times the American commercial investment. Although exact figures are not available for the French and Belgian stake, it cannot be less than a billion dollars. From the angle of investments alone, the figures indicate that the United States would have to go to war with its good neighbor and best customer and exhaust her strength and treasure to safeguard the investments of other nations which exceed our own at least twenty times in value.

During the last two years (1933-34) the United States exports to Japan averaged roughly \$233,000,000 with imports averaging \$148,000,000, a balance in our favor of \$85,000,000 a year. We do not have to extend long time credits for this business. We do not spend a dollar for the protection of American lives and properties in Japan or for the encouragement of this trade. It comes to us automatically and on the merits of our goods. We do not have to maintain a formidable fleet and a river patrol of gunboats and two regiments of soldiers to protect our citizens engaged in this trade, nor do we have to subsidize ships to carry the cargoes or maintain expensive agencies on the ground to solicit and book the orders. Such profits as accrue to us from this business are not offset or wiped out by overhead expenses. The balance sheet shows all clear gain, whereas in China, the problematical profits of \$10,000,000 from our \$100,000,000 export trade, are wiped out in the red ink column which shows that we are out-of-pocket about \$65,000,000 annually.

Aside altogether from the commercial phases of the problem, Anglo-American co-operation in the Far East against Japan, if successful, would hand over the hegemony of Eastern Asia to Soviet Russia. At present, Japan is the sole guarantor of law, order, peace and security in Eastern Asia and cannot be dislodged from her dominant position except by successful war. Japan's army and navy are keyed up to a high pitch ready for all emergencies, imbued with the determination to hold their own and the will to survive. The nation to a man stands behind them.

A Significant Statement

The Press Section of the Japanese Army recently released a pamphlet on "*Japan's Mission and the Basis of World Peace*," advocating a better distribution of territories, raw materials and population as the only basis for a sound and enduring world peace. This message was intended for home consumption and the following extracts will help to convey its import and significance;

"Asia is the home of the Asiatics, the life line of the Asiatic races. It is not a sphere of vital importance for the European races. It follows therefore that there is no reason why we Japanese should leave these lands to the exploitation of other races at the cost of our own existence. We support the doctrine of equal opportunity as applicable to the whole world and do not admit the justice of the principle as championed by a certain great Power that tries to confine it solely to Asia while refusing to recognize it when applied to its own continent." Strong words, these. But what follows is more challenging;

"We hope the other nations will no longer regard Asia as an appendage of Europe and will modify their policies to concede the justice of the principle that Asia is reserved for the Asiatics. There are however some imperialistic nations which cannot discard the conventional idea of world domination and who are inclined to maintain a naval strength superior to that of Japan in order to bring pressure to bear upon her for the solution of Pacific and Asiatic problems.

"Some Westerners resident in the Far East argue that the white races will be driven out of this part of the world by the Japanese and propose that the British and Americans must show a concerted front against Japan's advance. Some declare that not until conditions in Europe are stabilized and domestic problems in America solved, can pressure be brought to bear to hold Japan in check.

"If any foreign intervention similar to that which deprived Japan of the fruits of her victory after the Sino-Japanese and Russo-Japanese wars or during the more recent Manchurian incident should ever result from such considerations, Eastern Asia will be turned into a scene of bloody strife. In order to forestall such a contingency, it is imperative for Japan to possess the necessary strength to defend Eastern Asia."

Coming at this moment these extracts from the concluding chapter of the Japanese Army's latest educational booklet must therefore be interpreted as Japan's considered reply to the campaign now being waged for closer Anglo-American unity in Far Eastern affairs. It conveys a warning of what to expect in the event of any further international intervention to circumscribe Japan or deprive her of the right to exist in her own sphere. This might be supplemented by the closing paragraph of an editorial appearing in the September 18 issue of the semi-official *Japan Times*, which reads;

"Few responsible Japanese have advocated any such redistribution of colonies, territories or rights to immigrate as are envisaged in the passages which we have quoted (from Mr. Frank H. Simonds' article in *The Fortnightly* and an editorial in *The Times*). Japanese would hardly like to surrender what their nation now possesses, and hence would hardly advocate such a program on the part of others, no matter what surplus the latter may enjoy. But Japanese do insist that it is only fair that those nations who are surfeit with possessions, at least give Japanese commercial activity a fair opportunity as the only alternative of feeding her population in view of the lack of greater territorial and material assets. Japanese also insist that such surfeit nations should not obstruct Japan's expansion in a sphere of the globe which, due to geographical propinquity, she may regard quite as much a field of legitimate activity as the other more wealthy powers once regarded all quarters of the world."

Does Not Want War

The position of Japan is clear. It has been iterated and reiterated on every appropriate occasion by the responsible statesmen and spokesmen of the Empire. Japan does not want war. She seeks peace in her own part of the globe and sees no necessity for huge naval armaments whose only purpose is to wage war in Far Eastern waters. She has had enough of foreign intervention in

her affairs and has declared that never again will she submit her rights to the decision of an international court. She is prepared and determined to concentrate her diplomacy and armaments to the enforcement of this principle. She has not embarked on a program to subjugate and annex China. She has not alienated a foot of Chinese territory. Notwithstanding all arguments to the contrary, Manchoukuo is an independent state, whose people, "Chinese" by race and culture, are "sons of the soil," "born in the state," in every legal sense endowed with the right to set up their own form of government, declare their independence and accept the protection of Japan while establishing and solidifying their position. There is nothing to prevent Manchoukuo from joining other independent states of China Proper in some new confederation whenever conditions make such union desirable and advantageous. All the power of Japan could not prevent such a union should the thirty millions of Manchoukuo decide that it was essential to their welfare. And conversely, there is nothing that can stand in the way of another independent section of China Proper voluntarily joining its fortunes with the new state should such union meet with the wishes and will of its people.

Anglo-American co-operation in the form of naval pressure can never hold China together. The Nine Power Treaty was merely another name for a surgical operation to graft a backbone on to an invertebrate. The attempt to create a balance of power through the establishment of a strong centralized form of government in China has failed. China is in the throes of a prolonged revolution, with a small minority attempting to impose its rule over the majority, and protected in this imperialistic adventure by the provisions of a treaty that rejects the elemental rights of the peoples of any section of China to break away from the foreign recognized faction and declare their independence.

From the viewpoint of American idealists, China's unity and territorial integrity may seem to be essential to a proper balance of power in Eastern Asia, but if this desired end cannot be attained by peaceful compromise and common consent on the part of the peoples of all sections of that vast country, if it must be imposed by the crushing weight of armies of any one faction or war-lord, it will never hold together. The lives of thirty million poor, helpless, peaceful and hard-working people have paid the price of the wars of unification of the past two decades and the toll is still mounting. The tramp of contending armies, the shock of conflict, the roar of the exploding bombs dropped on defenseless towns and villages, drowns out the cries of distress. Whether they like it or not, these 500,000,000 people of the Mongolian race must unite as one nation and submit to the rule of the war-lord recognized by the foreign Powers as the one most convenient to do business with.

A Comparison from the Past

Yet this is not Militarism. On the contrary, this is DEMOCRACY, the stirring of the spirit of the masses of Cathay that will bring them into line with the most advanced civilizations of the West. This is the conception of the state that the advocates of Anglo-American co-operation insist must be protected and perpetuated in accordance with the terms of a treaty which makes no provision for revision or abrogation. We have gone back to mediævalism. Four years after the conquering Manchus set up their rule over China, the principles of the law of nations were laid down in the Peace of Westphalia (1648) which confirmed the independence and sovereignty of 355 states of various descriptions, the only way to terminate a century of strife that was depopulating and impoverishing Europe. In the face of similar conditions in China, two hundred and seventy-three years after, because we could not differentiate between the peoples of the Mongolian race, the makers of modern law reversed its origins, created one super-state and legalized its status without considering its ability to impose its rule over as many conflicting interests. As a consequence what is known as China has reverted to the anarchy, chaos and desolation that was mediæval Europe.

With due respect to the Kuomintang leaders and with a proper appreciation of the difficulties confronting Generalissimo Chiang Kai-shek in consolidating the rule of Nanking, history tells us that it is impossible to hold 500,000,000 people under one government. It has never been done in the past and cannot be done to-day. The Almighty never intended that one man should wield such power. If the voice of the people is the voice of God, then it is high time that Western civilization as represented by the

great Powers open their ears to the cries of a despairing people condemned by the man-made law of nations to become the prey of warlords and bandit generals until one stronger than the rest emerges from the strife as the Unifier of a Race.

Advocates of Anglo-American co-operation may preach about the duty of the two great democracies to re-establish world peace and prosperity, but this goal will never be reached as long as one quarter of the world's population is conceded the special privilege of wasting its resources in bitter and prolonged internecine strife. The first obligation of these two great Powers was to assist China to rehabilitate herself after the formation of the new Banking Consortium when Japan was willing and anxious to co-operate and then, to insist upon the faithful observance of the Washington Resolution in which China agreed to reduce the size of her armies. Had this been done while there was yet time to save the situation, there would be no need to urge a collaboration to-day that would commit the United States to underwrite British imperialism in all parts of the world in exchange for her support "to save China from Japan." It is possibly too late to retrieve the mistake but a way may yet be found to extend such help in co-operation with Japan. This is one answer to the plea for Anglo-American co-operation that would take the sting out of the proposed plan and make it more palatable and acceptable to Americans.

Some Inside History

The Far Eastern Review has a very intimate and accurate knowledge of the objects of Anglo-American co-operation as applied to China going back to war days and the organization of the Anglo-American Association in Peking. If it is now somewhat skeptical and lukewarm to the program, it is because it has sufficient evidence that the campaign then launched had for its main object the precipitation of hostilities between the United States and Japan on the termination of the World War. And although it can with all sincerity support the movement in its broader aspects for world rehabilitation, it does not believe that it can be safely applied in Eastern Asia without precipitating the showdown so strenuously advocated and ardently hoped for by its prompters in the Far East. If the editorial policy of this magazine seems to favor Japan it is because it holds firmly and unswervingly to the belief that a lasting solution of Far Eastern problems can never be reached by any Anglo-American understanding that ignores Japan's rights and position. We have urged American co-operation with Japan and tried to present and explain Japan's side of the case, to offset a propaganda campaign designed to arouse animosities and plunge the United States into a profitless and useless war. Notwithstanding the events of the past few years which have widened the breach, we remain hopeful and confident that a better understanding of basic conditions in this part of the world and an appreciation of Japan's difficulties will, in the end, enable the United States, Britain and Japan to come together in some common understanding for the restoration of peace and prosperity in China.

The picture of China is before us. Each beholder sees it from the angle of his own interests and political beliefs. There is a moving picture called "The Cock-Eyed World" with a prologue that in parts aptly portrays what is happening in China. On a background of lurid red and out of the phantasmagoria of war, battle and sudden death, is flashed "The Conquerors" riding roughshod to power and glory over a highway paved with the corpses of thirty million people. And the world applauds. This is what "respect for treaties, love of peace and abhorrence of oppression" has brought to the lowly myriads of Cathay. The great powers of the West, those guardians of Civilization and champions of Democracy, have no remedy for such an appalling situation. They will not interfere. They can only hope that out of the chaos and anarchy some semblance of stable government will emerge that will discharge its international obligations. They cannot even lend financial assistance to a government which has exhausted its assets in raising the funds to maintain its huge armies and prosecute its wars of unification. They are caught in the meshes of their own diplomacy and can do nothing except to advise China that she must work out her salvation unaided.

What China Needs

In the meanwhile the situation goes from bad to worse. Japan is the only nation that can now help China surmount her difficulties,

but her financial resources are limited and inadequate for any large scale program of rehabilitation. Japan understands that what China needs more than anything else is a respite from civil war, a return to internal peace and security so that the farmer can plant and harvest his crops and bring them to market. This cannot be done as long as the country is overrun with mercenary armies, communist hordes and bandits. Japan's co-operation must, of a necessity, be largely along military lines in its initial stages to clear the ground so that capital and economic co-operation can safely follow. In this Japan merits the support and goodwill of the other Powers which can do nothing but hold out promises that can never be fulfilled. It is futile at this juncture to keep harping on international co-operation and League support for the rehabilitation of China. Such measures have never passed the paper stage and never will. International consortiums for financing and reconstructing China have done nothing to relieve the situation and the day is now past when loans through these agencies can be floated abroad for any conceivable project in China. Mission after mission has investigated conditions in China and drawn up reports, resolutions and recommendations, but nothing has resulted. League advisers and technical experts by the score have studied every phase of China's reconstruction and as long as Chinese Government funds pay their salaries and expenses, they will continue to hold out promises of support that can never materialize.

Loans issued under the guarantee of the League of Nations are now in default and Geneva can do nothing to protect the bondholders. The only tangible benefit that can accrue to China from relying on the League is a moral support that cannot be translated into definite action without the full co-operation of the United States and its willingness to pay the bill that sanctions, blockade or war will impose upon her. If the League has lost much of its prestige and power for good in world affairs, China alone must shoulder the responsibility for this breakdown of the peace machinery. Not only did China knife the League at its birth by helping to "break the treaty in the Senate" because she would not accept the return of Shantung through direct negotiation with Japan, but she drove the knife home when she resolutely declined to confront Japan alone over the Manchurian issue and threw her case into the League and demanded concerted action. China's continued membership in the League and her perennial demands for a permanent seat on its Council, if conceded, would merely result in the prolongation of a situation already charged with dynamite.

China and the League

If Japan now declines to submit to further international intervention in her affairs, the reason for it is clear. Ever since 1895 when Russia, France and Germany intervened to deprive her of the fruits of her victory over China, the latter has on every occasion sought outside support rather than face Japan alone in amicable negotiation for the settlement of disputes. And as long as this policy constitutes the basis of China's diplomacy, the League Powers and the United States can never be assured of tranquillity in the Orient. China should either withdraw from the League or be relegated by that body to her proper position in the family of free, independent, self-governing states.

But Nanking refuses to acknowledge the realities of its position. It continues to seek support abroad, inviting missions to come and study conditions in the hope of extracting some trade or pecuniary advantage. It apparently ignores the fact that it has exhausted its credit, that it has no acceptable security for a foreign loan nor can it give guarantees that any transaction that might be put over will not be protested by Canton or repudiated by its successors. There are too many unpaid and repudiated loans which Canton in its semi-independence, protested at the time of their issuance and served notice that they would never be recognized. The first requisite to any important financial assistance to Nanking is a guarantee that the Government represents a unified nation.

It is all very well to say that China must solve her own problems, but the inescapable fact remains that if Nanking is not assisted by some friendly power it cannot much longer stand the drain on its resources arising from the demands of the military and the imperative necessity of continuing the campaign of unification. And here the world faces the further inescapable fact that the cost of these wars in the last eight years has brought the government to the point where to raise further funds it has had to

resort to an opium monopoly and pledge every dollar of its dependable revenues as security for domestic loans totalling over a billion dollars, of which, only about half has been realized by the treasury. The unification of China will call for many more hundreds of millions of dollars and even then there is no assurance that unity will endure and provide the revenues for the payment of interest and principal on loans advanced to consolidate the authority of the central government.

Not a Simple Problem

Anglo-American naval co-operation, unsupported by financial assistance to Nanking on a huge scale will not save China. What is left? It would seem that if China is to regain prestige and national power, that she must rely more and more upon the friendly assistance of Japan. But this cannot be brought about as long as the promise of Anglo-American co-operation is permitted to hamper or delay their coming together. Japan would be extremely unwise to enter into any program of economic co-operation with China as long as a group of highly placed foreign-educated officials continue to place reliance on Anglo-American support to counteract whatever she may do.

So we come to a stalemate. What is to be done? We can pour all the money in the world into China and it will disappear like water in the sands of the Sahara. The Chinese will take all and give nothing in return. Five million armed men living off the people will bankrupt and destroy the most prosperous nation in the world. Until these men are disbanded and their rifles exchanged for picks and shovels, there can be no hope for reconstruction in the land of Cathay. This will require persuasion, perhaps military pressure. The American and British navies cannot do it. Why not take Japan at her word and permit her to work out a plan that will help China to rid herself of this incubus? Japan may take advantage of her position but she can go so far and no farther. Trust the Chinese for that. As long as the Chinese play the game fairly and honestly there will be no pretext for Japan to employ force other than that necessary to hasten disarmament.

Sino-Japanese accord and friendship would do more to settle the naval problem than anything else. We could then take Japan at her word and reduce the ratio to 2-2-2 and the saving in armaments alone would be ten times the annual profits from our China trade and in the long run offset the loss of the entire business. Even when the American fleet is built up to treaty strength and then doubled, the great distances and lack of adequate bases in the Pacific, combined with the difficulties of penetrating Japan's defensive screen and the option of the Japanese High Command to determine when and where to accept the challenge, precludes the chance of decisive battle. As long as the Japanese fleet remains behind the Loochoo chain and inside the Formosa Channel, an enemy fleet breaking through this barrier would steam into a trap. The battle that would ensue would go down in history as decisive. No American admiral would risk the outcome of a war on such a fight so far from a base. Like the Japanese army and sea forces the American navy has its traditions. Ton for ton, gun for gun and knot for knot, any American naval commander would welcome the chance to take on two enemy ships of the same size and class, confident of his ability to outgun them from the start. As Admiral Standley reportedly remarked to his Japanese colleague during the last naval conference held in London, "We will go over and lick you with our present ratio." He said it with a smile, but he meant it just the same. He merely gave voice to a confidence that is part of the American naval tradition, but the day is past when the fighting spirit alone will win a naval engagement. Too much now depends on technical, mechanical and ballistic equations. The failure or breakdown of any part of the complicated war machine would throw all the rest of the equipment out of gear and the fighting efficiency of the crew would go with it. No nation would dare hazard the outcome of a decisive battle on the fighting spirit of its personnel alone. So Japan's proposed disarmament program should not be so difficult to accept. Common sense demands that it be given consideration.

The Hope for a New Era

We cannot check the inexorable march of events in Asia, even by a long, drawn out successful war. If we win, we lose.

We cannot stop 90,000,000 determined people from becoming great and powerful. Even should China and Japan join in offensive and defensive alliance, it could never be directed against an overseas power. The low naval ratio proposed by Japan, should it be accepted, would confine these two Asiatic nations to their own sphere and as long as the terms of such a pact were adhered to, the rest of the world would have nothing to fear from a militant Asia and there would always be time to prepare against eventualities should signs develop that it was becoming warlike. Some such arrangement would usher in a new era of peace in the Pacific and our only preoccupation would then be to protect ourselves against the trade competition that such a combination would be certain to let loose. We know to-day where we stand with Japan, but we do not know what the future holds from an industrialized and awakened China. Under the guidance of Japan, there is little fear that China will be rapidly industrialized. The first and most important step in the rehabilitation of China is the revival of agriculture so that the vast sums now expended on importing food products will remain at home, swell the purchasing power of the people and create markets for manufactured products. As noted, the disarmament and disbandment of superfluous armies is a pre requisite to agricultural recovery. On the other hand, foreign development of China envisages the establishment of industries whose products will be thrown on the world in competition with those of the West and with the same disastrous results that has followed the Japanese invasion of foreign markets.

One way for American and British trade to conserve their special markets is to help Japan expand her activities in China. As a result of the World War, Japan's trade with China increased to 45 per cent of her total trade and the Japanese very naturally viewed the China market as vital to their prosperity and existence. But Japan's favorable position was resented by American and British interests. Jealousies were aroused and for the first and only time in the Far East, Britons and Americans came together in an Anglo-American Association in Peking, its only bond and reason for existence being an intense anti-Japanese animosity which took the form of a secret and confidential propaganda that could not be openly combatted and to which can be traced much of the present hostility against Japan in Britain and the United States. This group dominated and assumed direction of Chinese policy to the point where it actually drew up and dispatched the long telegraphic protests against the Versailles Treaty and threatened the Chinese Delegates with dire consequences if they signed it. It instigated the anti-Japanese student demonstrations, the attacks on pro-Japanese officials and set in motion the boycott machinery against Japanese goods. This is a story in itself, but these highlights are sufficient to emphasize the point that the boycott enforced against Japan, followed as it was by a succession of similar movements, in ten years reduced Japan's proportion from 45 to 23 per cent of her total trade and restored the China market to American and British dominance.

The Question of Trade

This, and nothing else, sent the Japanese scurrying around the world seeking other sources of raw materials and outlets for their manufactured products. If British and American trade is now losing ground steadily before the determined Japanese trade offensive, they can trace their misfortunes back to the group which encouraged the Chinese in their anti-Japanese campaigns. They saved the China market, but American and British manufacturers, exporters and shipping lines have paid the bill in other parts of the world. And they will continue to pay in the loss of business in other lands as long as the Chinese are encouraged to prolong their anti-Japanese campaigns.

The natural outlets for the bulk of Japan's manufactured products are the low priced markets of Asia where the higher grade American or British goods cannot compete. If these outlets are closed to Japan, she must, of a necessity, in order to exist, concentrate her energies on developing markets in Latin America, Africa, the Near East and elsewhere, where by reason of price alone, she can undersell the British and Americans and take their trade away. So we have our choice. Common sense would indicate that if we hope to retain control of the Central, South American and Caribbean markets, it would help materially if the "Japanese menace" was confined to its own quarter of the world

and diverted into China. Anglo-American co-operation to hold their established business in their own special spheres of influence while trying to freeze Japan out of her natural markets in the Far East, can only result in a trade war that will prolong the depression and aggravate the already tense political situation.

A triangular Anglo-American-Japanese understanding as to markets would probably contribute more to restore world stability, prosperity and peace than any two-sided co-operation so loudly urged by its advocates. And, in the last analysis, the success of such a program would hinge almost entirely upon a complete cessation of anti-Japanese movements, boycotts and propaganda in China, the coming together of these two great people in a common understanding that will permit Japan to lend her assistance for the disbanding of superfluous armies, suppression of banditry, establishment of law and order, revival of agriculture, the slow growth of a purchasing power and the creation of a real market that can absorb the manufactured goods all nations are so anxious to sell to China. To talk of going to war to conserve this market as it exists to-day, is madness. No Anglo-American arrangement can develop this market without the hearty co-operation of Japan.

The Logical Thing

If a two-power understanding is essential to "save China," precedent, practice and prudence would suggest that the job be taken over by the two nations most directly concerned. If the British stake in China is \$1,750,000,000 and the Japanese stake is now estimated at \$1,500,000,000 (including Manchoukuo) and the total (missionary and commercial) American investment is \$230,000,000, it would seem that the burden of co-operation to rehabilitate China should devolve upon the two nations whose combined stake overtops the American, twenty to one. America's chief interest in China has been missionary and educational, holding the country as a field for activities, which, as President Wilson said frankly to the elder Mr. Morgenthau, called for men of the evangelical type to represent the nation as American Minister to Peking. China has been a field of uplift endeavor where, at the peak in 1927, our missionaries and educators outnumbered the businessmen two to one and, where for every dollar of profit extracted by the merchants from trade, the charitable people at home handed back one and a half, if not two, for uplift. Aside from this contribution to education and evangelical work, American capital has done comparatively nothing to develop the resources of China or to create a market for American manufactured goods. Such market as we now enjoy for these products has been developed largely through the investment of European and Japanese capital. Out of our \$150,000,000 commercial stake in China, \$50,000,000 represents the purchase price of the Shanghai Power Company; \$40,000,000 (book value) the oil installations and other properties; another thirty to \$40,000,000, represents interest and principal on defaulted and repudiated loans and unpaid bills for materials supplied to the Chinese Government. These figures are merely a very rough estimate and subject to correction, but sufficiently close to clarify the situation. American interests are therefore confined to the prospect of future profitable trade and preserving unimpaired the principle of equal opportunity until such time as internal conditions in China warrant the safe investment of our capital in developing the resources of the country, a condition which will never materialize until the superfluous armies are disbanded and law and order is firmly established. American intervention to help bring this about through the dispatch of armed forces is out of the question.

Why, then, not trust Japan and permit her to do this spade work. She may, and probably will, derive special advantages over others, but in the end a profitable market will evolve from the present vacuum and whatever direct trade with China may be lost by American and British firms will be more than compensated for by increased trade with Japan. If we are seeking trade alone this is one solution to the problem. If, however, we are more interested in setting up and maintaining a balance of power calling for the building of great war fleets, advanced naval and air bases in the Pacific and all the other concomitants and obligations attached to an understanding with Britain to enforce our political aims on this part of the world, it is well to read again the closing chapter of the Japanese Army's latest appeal to the Nation and digest carefully its meaning.

A Curb on Propaganda

Advocating a Congressional Investigation into the Conduct of American-Owned and Edited Newspapers Published in Foreign Countries

By GEORGE BRONSON REA

A BILL was recently introduced in Congress by Representative John W. MacCormack, of Massachusetts, under the provisions of which the publicity agents of "foreign principals" would be required to register at the State Department and file copies of all contracts, name of employer, amount and nature of compensation and other particulars before entering upon their duties. The bill defines the term "foreign principal" as "the government of a foreign country, a person not a resident of the United States, or any foreign business or political organization." The definition of "agents" is "..... any person who acts or engages or agrees to act as a public relations counsel, publicity agent, or as agent, servant, representative, or attorney for a foreign principal or for any domestic organization subsidized directly or indirectly in whole or in part by a foreign principal."

The bill is a good one but it does not go far enough. A clause should be added to compel all American-owned and edited newspapers or magazines published in foreign countries to file with the proper American authorities a certified audit of their income and open their books to the inspection of the nearest American Consul. It is not difficult to establish by the terms of contracts the exact relation of publicity agents to their foreign principals. It is a more complicated task to trace the threads connecting newspapers with certain interests, whether they be foreign or domestic. Even when all sources of profit and other private income of a publisher are bared to public scrutiny, it might reasonably give rise to the suspicion that these sources of income and the relationships so formed influenced the editorial policy of his newspaper but it could never be sustained before a court of law as proof of intellectual or editorial dishonesty. A great deal could depend on the nature of the sources of income and whether or not the policy so induced was for or against the public interest. Before any charge of bribery, subvention or financing can reasonably be brought against a newspaper, it must be clearly shown that the policy was influenced by its advertising contracts. Even then a legal case could not be made out, for the reason that every newspaper responds to and defends the interests of those whose support makes its existence possible. On the other hand, if it can be shown that the advertising was influenced by the editorial policy, it becomes legitimate and praiseworthy.

Many years ago, in the spring of 1897, the irascible old Generalissimo of the Cuban army, Maximo Gomez, threatened to shoot the *New York Herald* correspondent because the latter wrote the truth about the insurrection, and in a long-winded harangue to his assembled army declared that the policy of the *Herald* was anti-Cuban because its proprietor, James Gordon Bennett, had purchased a large block of Spanish bonds. There was probably not an iota of truth in this statement, but the "old Chinaman" had to find some plausible reason to support his threat to "bump off" Bennett's representative who had to think quick and do some tall explaining to stave off the execution. It is somewhat ironical to find that same newspaper, thirty-five years later, editorially accusing its old correspondent of selling his opinions for a few pages of advertising and inciting the Chinese to do what Gomez left unfinished.

That same correspondent was afterwards with *The New York World* and went up San Juan Hill with the Rough Riders. He wrote the story of the 71st New York Volunteers and telegraphed it to his paper where it passed the editor and was printed in full. In a few days cancellation of advertising contracts began to flow in and *The World* faced a boycott. Mr. Pulitzer headed a subscription list with \$25,000 to erect a monument over the graves of the "dead heroes of the Rough Riders and the 71st New York Volunteers" and telegraphed instructions to his correspondent to interview Colonel Roosevelt, Wood and other generals and get their approval and favorable comments. Roosevelt refused to permit his name

to be used in support of the movement. So the scheme was dropped. It is dangerous and expensive at times for a newspaper to tell the truth. The incident is cited merely to prove that the editorial policy and what a newspaper prints in its news columns, has a direct bearing on its revenues.

This little dissertation on journalistic ethics is inflicted on our readers for the reason that *The Far Eastern Review* was referred to recently in one American weekly as "being openly financed by the Japanese." Another prominent daily newspaper editorially referred to its publisher as a "highly paid Japanese propagandist" while still another mentioned the publisher as "notoriously known as a Japanese propagandist."

Why Are These Things So?

There seems to be a stigma attached to being a Japanese propagandist whereas a paid publicity agent of the Chinese Government who openly advocates war between the United States and Japan from public platforms and in public print, is accepted as proper and legitimate. The same appellation applied to European publicists working openly in behalf of their governments is an open sesame to the best American society, select public and private forums and the columns of our newspapers. The French Government recently appropriated the equivalent of G.\$5,000,000 "to make France better known abroad, that is, in the United States." The British have their own subtle ways of conducting propaganda and winning American public opinion. Perhaps that was the reason why Lord Lytton was made head of the League Commission of Enquiry to investigate and bring in a verdict against Japan. Lord Lytton directed British propaganda in France during the war. He is one of Britain's publicity aces. A campaign for Anglo-American co-operation in world affairs is in full swing but the old conditions are changing. The old Yankee type is disappearing and a new element that traces its origins to other European countries is taking its place and dictating the policy of the nation. It is getting harder and harder to persuade the American people that they must stand with Britain in regulating world affairs. But the old game goes merrily on. Ex-Secretary of State Stimson spent last summer in England, telling the people there that the United States was now anxious and willing to join the League of Nations. Lord Lytton returned his visit during the winter and in a series of lectures explained to the American public how Anglo-American co-operation would save the world and, incidentally, undo what Japan had done in Manchuria. Millions have been spent for the conquest of American opinion. Millions more are being appropriated. The stakes are high and the rewards great. Successful European publicists and propagandists are knighted, elevated to the peerage and cabinet positions. Their American dupes welcome them with open arms, throng to hear them speak and our newspapers spread their propaganda to every hamlet in the country.

We are learning the ropes. Washington is cluttered with the publicity agents of the Administration. All departments and bureaus of the New Deal have their public relations directors, all competing with each other to obtain free space in the newspapers. The flood of handouts, mimeographed copy, printed matter and photographs issued daily would fill the columns of several dailies to the exclusion of all other matter. Never before in the history of the nation, not even in war-time, have the newspapers devoted so much space to speeches, documents and other official information as under the present setup in Washington.

Something New on the Horizon

The membership of the National Press Club in Washington is composed largely of ex-newspapermen employed as publicity

experts under the New Deal. A seat at the Round Table at the lunch hour is an education in itself. It is the only place in the Nation's capital where one can get the low-down in concise language and gather an intelligent idea of what it all means. The Roosevelt Administration has certainly been good to the press in these dark days of depression and it will be remembered when many of its political sins of omission and commission are forgotten. It is the best investment the Democratic Party has made. But the end is not yet. There is no co-ordination, no centralized control or direction. We are on our way to greater things. Senator Royal S. Copeland of New York has proposed a bill in the Senate to create a super-publicity department presided over by a Commissioner of Publications, the first step towards the creation of a new cabinet portfolio. What power and prestige such a job would confer on the lucky newspaperman selected by the President to direct the publicity of the United States! Goebbels would take a back seat while George Creel in all his war-days glory and power would look like a deuce spot in the new game of moulding American and world opinion.

All this seems legitimate and commendable. Everybody's doing it, but should the Japanese Government maintain a Bureau of Information attached to its Foreign Office for the dissemination of legitimate official news or views; should it financially assist a national organ published in the English language in its own capital to have its viewpoint faithfully presented at greater length; should it be guilty of contributing financially directly or indirectly to a publicity scheme to advertise the country to bring in tourists and make Japan better known to foreigners; should it encourage a movement for closer cultural relations; should it employ foreign publicity experts to interpret its policies to foreign countries; in short, should it spend one yen to defend itself against the flood of propaganda issued in other countries to marshal world opinion against it, there is no word of vituperation in the English vocabulary strong enough to describe its wickedness.

The Japanese Government may enforce a strict censorship over the home press in matters affecting internal peace but it does not interfere with expressions of editorial opinion on international relations. Occasional articles on these subjects are written by some of her high officials, by Dr. Baty, the legal adviser to the Foreign Office or by some other expert, but these can hardly be classified as official propaganda. Even in respect to such articles, the Japanese are peculiar, maintaining, encouraging and supporting a captious and ever active Critic. Let Minister Hirota explain Japan's foreign policies in a speech before the Diet or in a Note to a foreign Power; let Dr. Baty express a legal opinion on some knotty problem of international law, such as the recognition of Manchoukuo, let Mr. E. Amau, Spokesman for the Foreign Office, give the reason for any diplomatic move, in fact, let any writer, official or otherwise, present Japan's case in a favorable light; there is always the cantankerous *Japan Chronicle* to tear the argument to pieces, impugn the honesty and motives of the writers and hold them up to public scorn and ridicule. Nothing that Japan does is right in the opinion of this mordant and scathing critic. Japan cannot be accused of indulging in propaganda as long as the *Japan Chronicle* is there to tell the world the other side.

We abhor newspaper controversies. So we have remained silent under a barrage of slander initiated and instigated by unscrupulous competitors whose objective was to divert the advertising in *The Far Eastern Review* to their own publications. Even the bill introduced recently in Congress had an indirect bearing on the activities of the Publisher of this magazine.

A Visit to Washington

Two years ago, the Publisher of *The Far Eastern Review*, acting as Counsellor to the Ministry of Foreign Affairs of the Government of Manchoukuo, arrived in Washington to explain unofficially to the people of the United States the case for the new state and to disseminate information about its progress. His first act was to visit the State Department, already in possession of a copy of his contract forwarded through the American Consul-General at Harbin, and request permission to carry out his mission. This was readily granted. His subsequent activities were conducted openly as the representative of the new state and all speeches, articles, pamphlets and books that he printed and circulated were honestly labelled, that is, the "Case for Manchoukuo."

There is an old law on the statute books of the United States, enacted in 1799, known as the "Logan Act," under the provisions of which no American citizen can accept service or employment or act as counsel to a foreign state in any case conflicting with the policies or interests of his Government, the penalty being \$5,000 fine, two years imprisonment, or both. This law has never been invoked. To do so would prohibit an American lawyer from representing a foreign government or client in a case brought by the latter against the American Government. Many brilliant American international lawyers have been retained as counsel for foreign governments and private firms in cases brought against the American Government. It was suggested and urged on various occasions that the Logan Act be invoked to put a stop to the activities of the Counsellor for Manchoukuo in the United States as being in opposition to the policies of the American Government, but this would have involved a discussion of the conduct of our foreign relations and fully justified an American citizen in acting as counsel for the unrecognized state of Manchoukuo.

Details from the Record

The record shows that many high officials of the American Government after the expiration of their terms of office have accepted positions as counsel and advisers to foreign governments. This is notoriously so in the case of China. The correspondence, opinions and advice of these men filed away in the secret archives of the State Department, have helped guide the diplomacy of their successors, building up a tradition and creating precedents upon which the policy of the Government is founded. Let us turn to the record.

John W. Forster, Secretary of State under Cleveland, was subsequently appointed Minister to China and, on the expiration of his term of service, became adviser to Li Hung-chang, accompanying the latter to Shimonsheki where he negotiated the peace treaty with Japan that terminated the war of 1895. On Mr. Forster's return to Washington he opened an international law office with the Government of China as his principal client. He was retained by this Government as its Counsel at an annual fee of \$25,000.

Mr. Robert Lansing, then an international lawyer, married the daughter of Mr. Forster and became a member of the firm. Mr. Lansing was afterwards appointed Counsellor to the State Department and was elevated by President Wilson to the portfolio of State. Naturally, he resigned from his law firm when he accepted these important official posts. It is no reflection on Mr. Lansing to state that while he was directing the foreign relations of the United States, his father-in-law and law partner was Counsellor of the Chinese Government in Washington.

Mr. William W. Rockhill, a former American Minister to China and a deep student of Chinese and Asiatic affairs, accepted the post of High Adviser to the Chinese Government on his retirement from the American diplomatic service. He died at Honolulu on his way to the Far East to take up his new duties. Dr. Paul S. Reinsch, American Minister to China under the Wilson administration, resigned his post to accept that of High Adviser to the Chinese Government at a salary of \$25,000 a year. In his letter of resignation to President Wilson he demanded a showdown with Japan. Mr. Charles R. Crane, millionaire philanthropist and dilettante in international politics, who was appointed by President Taft as Minister to China and recalled as he was embarking at San Francisco for making an anti-Japanese speech at Chicago, satisfied a thwarted ambition when President Wilson appointed him to succeed Dr. Reinsch. Mr. Crane is listed in the *China Year Book* as Honorary Adviser to the Chinese Government! The late Colonel Olds, assistant Secretary of State under Mr. Kellogg, was retained as Counsel to the Chinese Delegation in the appeal to the League over the Manchuria incident. Mr. Charles Denby, son of an American Minister to China, became adviser to Yuan Shih-kai and the Peiyang viceroy during his father's term of office and was afterwards appointed American Consul-General at Shanghai and then transferred to Vienna. His brother became Secretary of the Navy in the Harding cabinet. Commander I. V. Gillis, upon his retirement from the navy and the post of American Naval Attaché at Peking, was employed as adviser to the Chinese Navy. Dr. Arthur Young, a former economic expert to the State Department, is now adviser to the Finance Ministry of the Chinese Government. There are other ex-American officials who have acted as advisers to the Chinese Government or Provincial war-lords and still others whose relationships brought

them into close and intimate contact with strong pro-Chinese influences, yet in no case has there ever been the breath of suspicion against the loyalty of these gentlemen or any insinuation that their official attitude and handling of diplomatic affairs has been guided other than by a rigid adherence to the best interests of the nation.

These men have shaped, directed and interpreted American policy, their memoranda and confidential reports have become the basis of our diplomacy.

There was a time when Japan also welcomed foreign advice and the man who, from behind the scenes, helped to shape the destinies of the Empire during the years it was finding its place in the world, was an American. The name of W. H. Dennison is revered throughout Japan. Before the memorial shrine on the outskirts of Tokyo erected by a grateful people, the elder statesmen and diplomats of Nippon, render homage on the anniversary of his death. Other good Americans might have carried forward Dennison's good work, completing the task of linking the United States and Japan in bonds of everlasting friendship, but Li Hung-chang, the foxy old Chinese statesman, realized what he had to contend against in Dennison and engaged the services of John W. Forster, an ex-Secretary of State, to offset the American whose advice to Japan led to his humiliation at Shimonoseki. The campaign for the conquest of American sympathy and opinion has been carried on unrelentingly by Li's successors with the assistance of an almost unbroken line of American diplomatic advisers holding intimate relations with the State Department. These men have so dominated and influenced American thought on Far Eastern affairs that it is now considered unpatriotic and almost disloyal to hold opposite views or to take service under Japan.

New Law Needed

Only the assumption that the interests of China and the United States can never conflict or that there exists a secret Sino-American understanding justifies an American diplomat resigning his post to accept service as High Adviser to the Chinese Government. In view of the long drawn out tension created by conflicts of interests in the Pacific and the campaign launched to pit the United States against Japan, the liaison is bound to raise apprehension and distrust of policies. As long as such practices are legitimized by custom and practice, it seems futile for the responsible heads of either government to exchange Notes protesting their friendly sentiments and peaceful intentions. We need a new law on the statute books of the United States that will make impossible any further sale of our diplomatic secrets to other Powers.

Representative MacCormack's bill is therefore of vital national importance. Cracking down on publicity agents of foreign principals will not diminish the propaganda danger as long as officials of the American Government are at liberty to sell their knowledge of our diplomatic secrets to a foreign state. The bill should include a clause making it a disloyal offense for an American diplomatic or consular official to resign his post to enter the service of a foreign state and it should prohibit any ex-official of the American Government from disposing of his services to a foreign government where his intimate knowledge of American political, military or naval secrets may be utilized for the benefit of his employer or passed on to another government.

Before this MacCormack bill is permitted to become a law, hearings should be held before the House and Senate Committees on Foreign Relations to investigate and ascertain the truth surrounding certain propaganda activities. Only by a direct examination of witnesses can the testimony be extracted that would disclose the existence of what had all the earmarks of a conspiracy to plunge the nation into a war with Japan. Mr. Charles R. Crane would make an admirable witness. The Chairman of the Committee might with propriety ask him the following questions:

"Is it or is it not true that you were appointed by President Taft in 1909 as American Minister to China?"

"Is it or is it not true that Mr. Thomas F. Millard, a well-known anti-Japanese publicist, was to accompany you to China as adviser, secretary or confidential agent?"

"Did you or did you not deliver a speech at Chicago on your way to the Coast that was construed as anti-Japanese and which resulted in your recall as you were ready to sail from San Francisco a few days later?"

"Did you or did you not, shortly afterwards, help to finance Mr. Thomas F. Millard to found a newspaper in Shanghai called

The China Press whose outstanding feature was a rabid and uncompromising anti-Japanese editorial policy?"

"Smarting under the humiliation of your recall, did you or did you not then change your political allegiance and contribute a large sum to the National Democratic campaign fund in 1912?"

"Did you or did you not suggest and recommend Professor Paul S. Reinsch, of the University of Wisconsin, for the post of Minister to China? Is it true or false that Minister Reinsch occupied and made your apartment his headquarters while in New York on his various official and secret visits to that city?"

"Is it or is it not true that your son was appointed private secretary to the Secretary of State and that he accompanied Secretary Lansing to Paris and after the Peace was appointed first American Minister to Czechoslovakia?"

"Is it or is it not true that while at Paris as the intimate friend and confidant of President Wilson, you financed Mr. Thomas F. Millard to undertake a mission for the Chinese Delegation to proceed to Washington to 'break the treaty in the Senate,' thus contributing to the defeat of the treaty and keeping the United States out of the League? Mr. Millard testified before the Senate Committee on Foreign Relations that 'his expenses were paid by the Chinese Government.' So his main income and compensation must have been derived from other sources."

"Now, is it not true that in 1917, just previous to the United States entering the war against Germany, you furnished the capital and controlled the majority of the stock of the Millard Publishing Company, organized under the laws of Delaware to publish a magazine in China to be known as 'Millard's Review of the Far East'; that the ownership of these shares was concealed behind the name of a prominent American firm of lawyers in Shanghai acting as trustee and that this publication became a rabid anti-Japanese organ advocating war between the United States and Japan?"

"For the past several years, Mr. Millard has been adviser to the National Government of the Republic of China. It is reported that he has not been paid for three years. Does he or does he not receive from you the equivalent of this salary?"

"It is openly stated that you pay the salary and expenses of another foreign adviser to the National Government of the Republic of China. Is this true or untrue?"

"It is matter of common knowledge that you have endowed the 'Institute of Current History' which confines its activities to maintaining an observer in China. To whom does he report? For what object is this special service maintained? Are the reports confidential or intended for the information of the public?"

"The present agent of this institute is Dr. Walter C. Young, whose voluminous reports on Manchuria were published in three volumes in 1931. Dr. Young, an American educator, was appointed Legal Adviser to the League Commission of Enquiry which investigated conditions in Manchuria and reported unfavorably against Japan. Did you or did you not use your influence to have your agent selected for this important post?"

"You were appointed by President Wilson to round out the uncompleted term of Dr. Paul S. Reinsch as Minister to China when the latter resigned to accept the post of High Adviser to that Government and in resigning called for a showdown with Japan. Is it or is it not true that you intended to use your millions to endow a college or a hospital to show your great sympathy with the Chinese people? Is it or is it not true that during your term as American Minister to China, you toured the country accompanied by Professor Stanley Hornbeck, the successor of Dr. Reinsch at the University of Wisconsin, for the purpose of selecting a suitable site for the proposed college?"

"You are listed in the *China Year Book* as an Honorary Adviser to the National Government of the Republic of China. Please explain why an ex-American diplomat, confidant of presidents, father of an American diplomat, financial backer of anti-Japanese agitators and alleged paymaster to the advisers to the Chinese Government, should be holding a position which brings to a foreign government the benefit of your experience and intimate connection with the highest officials of your own country?"

In 1920, Mr. Charles R. Crane joined with Mr. Herbert Hoover in purchasing the controlling interest in a daily newspaper of Washington. This would indicate that Mr. Crane was prepared to hop aboard the band-wagon of the new administration, that he had no fixed political ideals or principles, swinging from one party to

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The Situation in Shanghai

THROUGH recent months the political barometer in the Shanghai area has been shifting downward, and while no major disturbances are expected to develop, it appears certain that highly important changes are about to take place and that the nature of the administration of the International Settlement of Shanghai presently will be modified. The onslaught against the long-established order of things is being led to-day by those who represent the 30,000 Japanese living in Shanghai. Toward this effort of the Japanese the British, whose influence must wane if the changes are brought about, appear to be mildly acquiescent. American and other foreign interests, who stand to gain in power and prestige, seem merely to be watching and waiting. The Chinese, who look forward to a day of rendition when existing treaties will be rewritten and all foreign authority will be uprooted, regard the situation as a conflict in the camp of the common adversary and they make it plain that they are not specially interested in the troubles that foreigners have among themselves. The situation has not yet progressed far enough to give exact indications of what is taking form, but a new set-up in government in Shanghai within the coming year seems inevitable.

In the course of the growth and development of Shanghai through a period of a little less than a century a situation unique in municipal government has been evolved in that three separate and distinct administrations, each within its own sphere independent of the other two, and with the interests of all often in conflict, are in control of different areas and rule the port. The major foreign element of the three administrations, that of the International Settlement falls under the sway of upwards of twenty foreign powers represented by consular officers, who form the Consular Body. Early in Shanghai's history the French withdrew from other foreign interests and founded the French Concession, ruled to-day as it has been from the beginning under French law and according to French practice. Americans had refused to accept any concessions of this nature but had been content six years before the French Concession was founded to merge their interests with the British in the International Settlement, which has an area of about eight square miles, a little more than double the size of the adjoining French Concession. Surrounding the two foreign settlements is the territory that in recent years has come to be called Greater Shanghai. This is Chinese territory under the rule of Chinese officials.

A Bewildering Trinity

The stranger in Shanghai wandering through the city can scarcely tell by any outward sign where these several separately ruled areas begin or end. In the French Concession he will encounter French gendarmes, Saigonese police in their distinctive conical headgear and French soldiers and sailors. As he penetrates into Chinese territory of Greater Shanghai merely by crossing a thoroughfare he will see Chinese traffic police or Chinese soldiers in the streets. By crossing another street he may enter the International Settlement, the center and heart of commercial Shanghai, and here he will meet with every race under the stars and see a constabulary made up of Chinese, British, Japanese and possibly a few Americans and other nationals with the outstanding figure of the turbaned British Sikh policeman in evidence everywhere. Military and naval uniforms of the various foreign powers are commonplace in the streets of the International Settlement.

Until very recent years American interests in Shanghai have been comparatively negligible, for the most part evangelical and eleemosynary, visible in educational institutions, hospitals, churches and missions. In taking over from municipal control the electrical services of the International Settlement to establish the Shanghai Power Company and also in financing and developing the Shanghai Telephone Company Americans have acquired a measurable stake in the port of Shanghai, but this is not larger than the Japanese holdings and is dwarfed by the still dominant British interests. The actuating force in the International Settlement of Shanghai from the beginning has been British and the British influence remains predominant to-day. Poor Will Rogers sized up Shanghai back in 1932 when he opined that "it looked like Brooklyn gone English." The

challenge of the present day has been launched with the intention to displace this British influence and power.

It may not be overstating the truth to say that the International Settlement of Shanghai, in co-operation with the French interests of the French Concession, activates the commercial pulse of the entire Chinese nation. The International Settlement came into existence by virtue of a leasehold, called the Land Regulations entered into between the Government of China and the foreign powers. This charter which has all the force of a treaty, was evolved with the purpose of providing a place in China for foreigners to reside and trade. In the scheme of international affairs Shanghai was about as important at that time—in the early 'forties of the past century—as is to-day the port of Monrovia on the coast of Liberia in Africa. The Land Regulations served admirably all the needs of Shanghai's foreign community in early days and perhaps up to the close of the century. The circumstance that Shanghai has grown to be a great center of wealth and commerce and in importance has become the fifth port in the world gives point to an observation in the *North-China Daily News* made by a correspondent evidently a Briton, as he signs himself "John England." He said that the ancient charter under which Shanghai continues to be governed is "like a suit of clothes hurriedly made to cover the nakedness of a growing youth but which he is compelled to continue wearing after he has developed into husky young manhood and ripe middle age."

The Government of Shanghai

The local authority in the International Settlement, under the Consular Body, is a municipal council and for many years this has been composed of nine members five British, two Japanese and two Americans elected annually by ballots of alien residents of the Settlement who paid municipal rates. Through recent years Chinese demands for representation in the Settlement's Municipal Council and for more voice and authority in the direction of affairs have grown more and more insistent. The Chinese put forward as basis for their demands the fact that they pay considerably more than half of the municipal rates in the Settlement and under this pressure the foreign authorities have been yielding gradually, first in surrendering juridical authority to Chinese courts within the foreign settlements and then to granting admittance to five Chinese members of the Municipal Council, elected by Chinese ratepayers. Until the present, however through these various changes the British control of affairs has remained unshaken. It is this British control that Japanese newspapers in Shanghai and Japanese spokesmen have been attacking. The contentions put forward are:

That the system of electing members of the Municipal Council is obsolete and undemocratic.

That the personnel of the Municipal Government is predominantly British in nationality and oligarchic in functioning.

That the cost of governing the International Settlement is too high and that in particular salaries paid are out of proportion to worth and also that there are numerous unnecessary expenditures for the Volunteer Corps, police, education, the municipal orchestra and in other departments.

That the municipal budget, especially in education, is not divided equitably among the various national communities comprising the ratepayers.

The alien groups most influential in the city of Shanghai are given in the 1930 Settlement census and the 1934 French Concession census as follows:

INTERNATIONAL SETTLEMENTS			FRENCH CONCESSION		
Japanese	..	18,478	French	..	1,430
British	..	6,221	Americans	..	1,792
Indians	..	1,842	British	..	2,630
Russians	..	3,487	Russians	..	8,260
Americans	..	1,608	Germans	..	725
Portuguese	..	1,332	Indians	..	47
			Japanese	..	280

It is to be noted that the Japanese greatly outnumber other nationalities and it is to be added that the census totals above take

no account of the very considerable number of Japanese residing outside of limits of the settlements and particularly along the extra-settlement roads in the northern environs of the city.

The Japanese Position

The Japanese contention summed up briefly is that the Municipal Council is not giving value received for the taxes they pay and that municipal expenditures are extravagant, needless and out of all proportion to values given for the outlay. And with another municipal election looming in the coming spring it seems apparent that the Japanese purpose to take definite action. Were Japanese and American interests merged the two groups could completely dominate the political situation in Shanghai, but even without American or other co-operation, it should be remembered that the Japanese, increasing rapidly in numbers, already outnumber the combined total of all other nationalities having extra-territorial rights; they are the best disciplined voters in Shanghai and therefore they form the largest effective voting group, although they have not the largest number of registered voters. It may be urged with regard to the existing situation that the British pay 25.84 per cent of the general municipal rates and of the land tax the British pay 82.11 per cent, although much of this land tax is on property not owned by Britons but registered in their names. The Japanese pay 6.8 per cent of the general municipal rates and 7.2 per cent of the land tax and they point out pertinently that if shares in the municipal government were to be apportioned on the basis of taxation then the Chinese would have a greater representation than all the foreign elements combined.

In the early years of Shanghai, before the port had a Japanese population and before American or other interests had developed beyond mere beginnings, when the French were entrenched within their own area, it followed in the natural course of events that British influence and authority expanded with the growth of the city. It is only very recently that this British position has been challenged from any quarter. It is understandable therefore why the British sway the greatest power in the Municipal Council and why the important executive positions in the government of the International Settlement and the majority of posts in the rank and file of the various departments of the municipality are filled by Britons. Under this British administration, which built up and developed a haven for Chinese and foreigners alike, the community came to be called the "Model Settlement," and its government, of course, was patterned upon western methods and practice. This in a measure explains the question of salaries paid to executives of the municipality, a point about which Japanese spokesmen have been specially emphatic. These salaries are high, perhaps too high in these days of depression, and some point may be given to the criticisms by the circumstance that considerable increases in already high salaries have been granted through these years of the depression.

Regarding Salaries

When the question of the continuance of a heavy appropriation to maintain a municipal orchestra was under discussion at the recent annual meeting of the Settlement ratepayers last April an American, the Rev. C. L. Boynton, presented a pertinent statement on the matter of salaries of municipal officials.

"The estimates for 1935," he said, "indicate the intention of the Council to pay 35 employees a total of \$666,200 in salaries during the year, or an average of \$19,300. These same posts in 1930 carried a remuneration of \$554,390. The difference is \$111,810 per year or an average increase of \$3,200 per job. Fifty-seven others are due to receive \$793,500, or an average of \$14,000 each. I have grouped these separately because this second lot cannot be compared item for item with the 1930 counterparts. Some, like the \$26,000 Municipal Advocate and the \$23,500 Press Information Officer, are new. Others like the 2 Assistant Treasurers, 2 Finance Accountants, 2 Chief of Section, 2 Senior Assistant Land Surveyors, 2 Pathologists, etc., all the receive salaries from \$12,000 to \$16,000 per annum, are too minor to be listed separately.

"The first group includes the Police Commissioner at \$42,600 with an increase of \$9,000 in 5 years, and the humble and newly created Japanese Press officer at \$10,070.

"I note two other increases of over \$7,000, three of over \$6,000, six of over \$5,000, eleven others ranging from \$1,000 to \$4,000,

beside many doubtless as great, impossible to determine exactly because of the groupings mentioned or changes in titles."

With regard to the personnel in the government of the International Settlement the following list, which does not include the police was compiled in 1934: Americans, 22; Austrian, 1; Belgian, 1; British, 417; Chinese, 50; Danish, 6; Dutch, 1; Esthonians, 2; Filipinos, 2; French, 1; Germans, 5; Italians, 8; Japanese, 22; Latvian, 11; Lithuanians, 2; Netherlands 2; Norwegians, 3; Polish, 2; Portuguese, 2; Roumanians, 1; Russians, 43; Swedish, 1. A recent compilation of nationalities represented on the Shanghai foreign police force, not including prison staff and Sikhs gives a total strength of 745 individuals as follows:

British	..	..	..	..	57.59 per cent.
Japanese	..	..	..	..	33.29 "
Russian	..	..	..	..	7.39 "
American	..	..	..	..	0.94 "
Danish	..	..	..	..	0.27 "
Austrian	..	..	..	..	0.13 "
Netherlands	..	..	..	..	0.13 "
German	..	..	..	..	0.13 "
Czecho-Slovak	..	..	..	..	0.13 "

It is to be noted that the Sikhs, who form a large portion of the police force, are, of course British subjects and should their number be taken into account it would increase the British percentage to more than double that of the Japanese.

Originally a British Idea

It is a noteworthy circumstance that the present movement which Japanese interests have seized upon and are pressing so vigorously originally was a British conception set forth in published warnings to the authorities that the time had come when attention must be given to questions having to do with modifications of present-day administrative methods. Before Japanese spokesmen gave impetus to the movement American interests in the Settlement also had displayed signs of restiveness in the form of outspoken criticisms of the Municipal Council and its works. In this connection the leading American newspaper in Shanghai, *The Evening Post & Mercury* recently published a comprehensive series of articles in which the situation was presented with painstaking detail, but in a spirit of complete impartiality. A British viewpoint was set forth editorially recently in the official British organ and leading British newspaper in China, *The North-China Daily News*, which, in part, was as follows:

"So long as the Settlement manages to dispose of its immediate difficulties by the device of evading them or by piecemeal improvisation all is well. The significance of public criticism is gently ignored. The constantly recurring proof of the Council's inability to deal with urgent social, economic and political problems is airily dismissed by complacent reference to superficially similar predicaments in the 'eighties, the 'nineties or any era which seems sufficiently remote to give historical respectability to counsels of inaction. Yet, under the surface, to the acute observer there appear truly menacing symptoms of malaise, neglect of which will surely bring disaster. What form that disaster may take it is not necessary to attempt to indicate. Prophecy of the specific is not part of a commentator's functions. It is more appropriate to endeavor to analyze the actual situation in the hope of generating a real sense of the need for an active search after remedies.

"In the last three years the turmoil of political changes has gravely disturbed the balance of the international polity on which the Settlement rests. The process of attrition by which the Council's authority has been gradually undermined is being developed in subtler style and with the direct or indirect assistance of elements formerly accounted on the side of the *status quo*.

"Greatly accentuated by the current economic depression, foreign discontent with the Council's policy and actions has developed side by side with the emphatic assertion by one foreign community of its intention and desire to play a more prominent part in the Settlement's affairs than has in the past been permitted to it. Both sentiments are justified. They would not endanger the Settlement's existence were it not that the peculiar rigidity of the constitution prevents their receiving prompt and effective redress. Japanese aspirations and

criticism receive far more endorsement from other foreign nationals than even the Council itself altogether realizes.

"It is true that the endorsement appears to ignore some of the graver implications of its possible effects. That is, however, all the more reason why it should be taken seriously into account. If the discontent were inclined to take unto itself the power of coherent action in which Sino-foreign pressure could be exercised, the whole of the archaic machinery devised for the Settlement's governance might pass beyond the control of the somnolent authorities who now are content to allow an inadequately equipped Council to bear the full burden of protecting a municipal enterprise from international complications. . . . Japanese impatience has received vigorous presentation but that community, as a whole, is probably convinced that the international character of the Settlement affords the best opportunity for furthering the commercial prosperity in which Japan takes an ever-increasing share.

"If, however, sufficient regard is not paid to what are held to be legitimate desires, then the possibility of curbing chauvinist suggestions is likely to recede. The Council, in this medley of conflicting ambitions, has been embarrassingly placed. Political expediency, applying pressure from more than one direction, has led it to readier surrender than the circumstances have always justified. The resident on the Outside Roads, no less than the non-Japanese inhabitant of Hongkew, will supply chapter and verse. This weakness is dangerous: it gives the Settlement no protection against the appetite which grows by eating. It definitely antagonizes other nationals and it receives scant appreciation from its beneficiaries. It arises from the anomalies and defects of the Council's composition and constitution."

The need for stirring the responsible Powers to a really effective joint consultation on this problem is urgent. It can be met only in one way: the Council should at once set itself to the formal examination of the whole position and should prepare a full statement for presentation to the proper authorities. Public opinion should organize itself in the meantime to give the Council in this matter strong and effective support. If the Powers are confronted with a unanimous petition from the Sino-Foreign residents of Shanghai they will at least be unable to say that they have not been warned."

The factor that has led to the present state of affairs in Shanghai is the tremendous growth of the Japanese population in the port. The figure quoted as the number of Japanese in Shanghai—18,478—is the number given in the 1930 census and the rate of increase of the past twenty years makes it conservative to estimate that approximately 25,000 Japanese now are residents of the Settlement. Their numbers have considerably more than doubled within the past fifteen years.

The organization that is most active in sponsoring the present movement is the Japanese Residents' Corporation. It is in the nature of a government within a government, for its five thousand members, in addition to whatever ordinary municipal rates and taxes that they pay are obliged to meet assessments to this organization of their own which supplies the funds for schools and for various other purely Japanese enterprises of a public or semi-public nature. The question of public funds for education within the Settlement, regarding which Japanese spokesmen have been particularly emphatic, is another outgrowth of conditions in the past. None denies that the allotment of municipal funds for the education of children of the several nationalities is utterly disproportionate to size of population, the amount of rates and taxes paid or to the number of pupils cared for. In 1934 when the municipality made grants amounting to \$169,000 to non-Council schools the sum of \$128,000 of this was paid to the Japanese Residents' Corporation for the Japanese schools. The balance required for the maintenance of these school was made up from a special tax that the Japanese Residents' Corporation imposed upon its members and from school fees required from parents of pupils in the higher grades in the Japanese schools.

In statements that have been presented to the authorities by Japanese spokesmen it is pointed out that there are 1,592 children in the six foreign municipal schools, maintenance of which costs the ratepayers of the Settlement \$833,380 yearly, and that there are 3,594 children in the seven Japanese schools for which the Council contributed only \$128,000. The Municipal Council expends annually more than three millions for educational enterprises to

care for approximately 7,500 school children about 6,000 of whom are Chinese. The bulk of the funds for education, more than two million, is expended for salaries and allowances for teachers and most of the remainder of a million, budgetted as extraordinary expenditure, is intended for the construction of new schools. In short, the contention put forward is that the major portion of the educational funds is being expended for the education of a minority of foreign school children in the Settlement. Changes in the present system that have been suggested in a memorandum addressed to the Municipal Council by the Japanese Residents' Corporation are that—First, the Council abandon its present system of controlling and managing municipal schools; Second—that the Council shall distribute subsidies to Settlement schools which are being controlled and managed by various foreign communities; Third—that the fund to be yearly appropriated hereafter for such subsidies be fixed at the sum as budgetted for the fiscal year, 1934, including ordinary and extraordinary expenditure, and, Fourth—that the ratio of appropriations to each individual foreign school is to be based on the number of school children accommodated therein or on the number of Settlement ratepayers.

About the Volunteer Corps

Some considerable part of the criticisms aimed at expenditures by the Municipal Council deal with the little standing army that is maintained and is known as the Volunteer Corps, an institution certain Japanese leaders hold to be unnecessary. The salary of \$18,040 paid to the British commandant and, in particular, maintenance of the Russian contingent of 311 men on salary at an outlay of \$205,600 is held to be unwarranted.

"The maintenance by the Shanghai Municipal Council of its Volunteer Corps of various nationalities is unnecessary," says a leading Japanese spokesman in a statement to *The Shanghai Evening Post*. "The corps, whose annual expenses amount to approximately \$800,000 (1935), representing \$386,490 for unpaid volunteers of various nationalities and \$405,050 for paid volunteers (Russians), was originally and is intended for the defence of the Settlement. But if one envisages how much or to what extent the residents at large are at present putting confidence in the ability of the corps, one may at once come to the conclusion that it is tantamount to nothing. From a practical point of view, the defensive power of the corps, when the Settlement is confronted by an emergency on a major scale, is almost useless, as has been evidenced in the past. In any emergency of a serious nature, the Settlement has no alternative but to depend on foreign troops, and the foreign troops, be it remembered, are stationed here.

"So long as the foreign troops are in existence, it is quite meaningless for Council to keep volunteers, both unpaid and paid, at the cost of such a vast expenditure. Moreover, it is absurd that the commandant and some high officers of the volunteer corps are commissioned from among British officers in actual service in the British army. This distinctly discloses the wrong idea that the Settlement is still under exclusive British jurisdiction. There is no reason why British officers in actual service of the British army should be commissioned as the Commandant and officers of the staff of Volunteer Corps of international nature.

"Supposing that the Volunteer Corps should be preserved it is natural that the commandant and staff officers be invited and commissioned from among officers of a country nearest to this city, or one of the commanding officers of the foreign troops here be commissioned as Commandant of the Municipal Council Volunteer Corps, be assisted by a corps of staff-officers representing various foreign Defence Forces here. Not only is this method reasonable but it would mean curtailment of expenses.

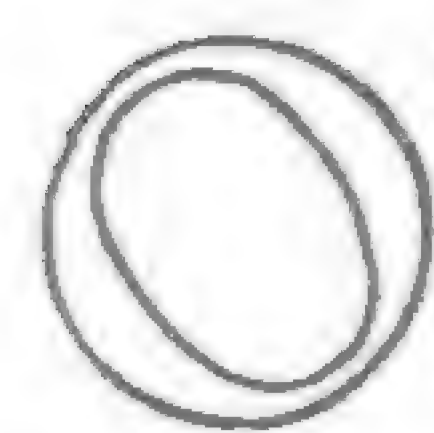
"Furthermore, it is the height of folly that the Municipal Council has been and is obtaining the supply of clothing, consumption goods, arms and ammunition from England."

With reference to this statement in all fairness it should be pointed out that the Shanghai Volunteer Corps has a long and distinguished record that dates back to 1854 when it was founded to protect the Settlement during the Taiping rebellion. On numerous occasions through many years it has been the one force responsible for maintaining law and order in the Settlement in times of stress. Further, it is only since 1927 that regular foreign troops have been stationed in Shanghai and no guarantee exists

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The Nippon Yusen Kaisha

1885—N.Y.K. Line—1935

 On October 1, 1935, the Nippon Yusen Kaisha will celebrate their Golden Jubilee. Since its foundation in 1885 its career has been one of unexampled progress and prosperity. Therefore it will not be out of place to review shortly the history of the Company.

Prior to the formation of the N.Y.K. Line, there were two prominent steamship companies in existence in Japan—one was the Mitsu Bishi Kaisha, and the other, the Kyodoh Unyu Kaisha, The Mitsu Bishi Company, which was the nucleus of the N.Y.K., was established by the late Mr. Yataro Iwasaki in 1871. For nearly 13 years, this company played a most conspicuous part in the development of the Japanese mercantile marine, and gained virtual monopoly of the entire mercantile transportation of Japan.

Complaints, however, began to be raised against them and organized opposition was started, culminating in the establishment of the Kyodo Unyu Kaisha (The Union Transport Company), in 1882. This company acquired many new steamers, and carried on its business in open competition with the Mitsu Bishi Company. The competition became so acute that at last arrangements were reached for the amalgamation of the two concerns in 1885, resulting in the formation of the Nippon Yusen Kaisha.

New Overseas Lines Opened

The Nippon Yusen Kaisha, while maintaining the services originally inaugurated by their predecessors, opened new lines to Korea and North China, and one between Shanghai and Vladivostok, and in 1891 they inaugurated the service between Kobe and Manila and commenced to dispatch occasional steamers to Australia. In the following year, 1892, the N.Y.K. Japan-Bombay service was opened, the first regular Japanese steamship service with a far overseas country.

After the Japan-China War of 1894-5, the Nippon Yusen Kaisha lost no time in consolidating their established lines, and in the year following, 1896, they inaugurated three trunk services, viz., the Yokohama-London-Antwerp Line, the Hongkong-Japan-Seattle Line, fortnightly, and the last mentioned was four-weekly. For the purpose of expansion, the Company's capital was increased to double the previous amount, viz., Y.22,000,000, and more than 12 new steamers were built both at home and abroad with the result that by the end of September, 1896, the N.Y.K. owned and operated 54 steamers of about 100,000 gross tons.

The decade from 1895 to 1905 was remarkable for a rapid and general expansion of the foreign trade of Japan, and in furthering this expansion there was no more important and efficient auxiliary than the N.Y.K. the prosperity of which has kept even pace with Japan's growth as a factor in international commerce. The steamers owned by the N.Y.K. at the end of September, 1905, numbered 73, their gross tonnage amounting to 250,100.

Following the close of the Russo-Japanese War of 1904-1905, the N.Y.K. began a new development of its ocean lines. To meet the requirements of a constantly enlarging volume of trade and traffic, the Company added new steamers, created new feeder lines to and from a large number of ports of the Far East, and made its service conform to the highest ideals of ocean liner efficiency with every comfort and convenience demanded by the modern traveller, while in cargo service it has kept up with the wonderful expansion of Japan's trade with her neighbors in the East and with the great commercial nations of both hemispheres.

One of the important additions made by the Company to its lines of service was the opening in 1911 of its Calcutta lines, which, along with its long established Bombay line, has been a leading factor in the establishing of more intimate and greatly increased trade relations between India and Japan. No more important accretion to the commerce of Japan has occurred than the building up of the Indo-Japanese trade, chiefly promoted by the enterprise of the N.Y.K.

The progress made by the N.Y.K. during the decade from 1906 can be well proved by the fact that the number of steamers owned by them on the outbreak of the Great War in 1914 was 86, their gross tonnage amounting to over 380,000.

Service During Great War

With the progress of the war nearly all the trade routes of the world were soon beset with various dangers and difficulties. Notwithstanding this, the Company, besides maintaining its regular services, reinforced them with many new steamers, and opened up additional cargo and passenger lines, thereby serving the need and demand of the new trade and traffic conditions created by the war. Thus the Company's auxiliary cargo steamers on the European line began to operate from Europe to New York across the Atlantic, and to return to Japan across the Pacific via the Panama Canal, completing a round-the-world voyage.

In 1915, the Company found itself possessed of 93 steamers of over 428,600 tons gross. Its exceptional financial position is proved by the startling fact that against its paid-up capital of Y.22,000,000, its reserves amounted to about Y.33,000,000, backed by a corresponding amount of cash, and other tangible assets, the book value of its steamers being Y.85 per ton gross, or less than half of the then market value. The Company's nominal capital of Y.22,000,000 being thus found inconsistent with the actual strength of the Company and the prospective expansion of its future business, and it being deemed that the shareholders should receive in some form the benefit of the enormous reserve, it was decided that the capital be increased to double the amount, viz. Y.44,000,000, each shareholder being allotted a number of new shares corresponding to his original holdings, and the first instalment of one-quarter of the amount of the new shares being covered out of the Company's reserves. All the new shares were subsequently fully paid up.

Increased Overseas Services

In June, 1916, the Company opened a regular four-weekly freight service between the Far East and New York via the Panama Canal, establishing a direct water-way communication between Far East Ports and the Eastern shores of the U.S.A. In August, 1916, the Company initiated a freight service to New Zealand, opening up a new and direct trade relation between Japan and that country.

Other regular lines opened during the period under review, namely, 1914-1918, were the Japan-Liverpool Line, Japan-Java-Calcutta Line, Calcutta-New York Line, Japan-Calcutta-Seattle Line, South Sea Islands Line, etc., the last named being a monthly service from Japan to the Marshall and Caroline Islands. Besides all these regular services, the Company's operations have also been extended to South America, to which ships with emigrants and cargo are often dispatched.

In 1917, when the Company's reserves grew to Y.77,000,000, its fleet numbering 99 vessels of more than 453,000 tons gross, inventories at Y.72 per ton, its position being thus stronger than ever, it was deemed opportune to consolidate its foundation still further, in preparation for future additions to its fleet and the extension of its operation, by increasing its share capital to Y.100,000,000, this plan being subsequently adopted at the shareholders' General Meeting. As on the previous occasion, the first instalment of one-quarter of the amount for the new shares allotted to the holders of the old shares was paid out of the reserve. Thus the amount of paid-up capital stood at Y.58,000,000.

Now it would not be out of place to mention the part played by the N.Y.K. for the cause of the Allies during the Great European War, a part which was by no means insignificant. Foremost among its contributions was the maintenance of the regular fortnightly Japan-Europe mail service, and the dispatching of frequent

auxiliary steamers throughout the continuance of the war. This undertaking entailed heavy risks for the Nippon Yusen Kaisha, resulting in the sinking of the mail steamers, including the *Yasaka Maru*, one of their finest ships, besides a new cargo carrier. Undaunted by these sacrifices and warmly supported by the brave captains and crews, the Nippon Yusen Kaisha continued to serve the Allies by carrying foodstuffs and war material from the Far East to Europe.

Since the cessation of hostilities with Germany in November, 1918, the Company has extended its Japan-London-Antwerp freight line to Hamburg to which port a four-weekly service is now maintained with six steamers calling at Kobe, Yokohama, Moji, Shanghai, Hongkong, Singapore, Colombo, Suez, Port Said, London, Antwerp and Rotterdam.

Even in the post-war period of shipping inactivity, when a large number of vessels had to be laid up by shipowners at large, the Company never wavered in the improvement of its services. In 1922 the *Nagasaki Maru* and *Shanghai Maru* of 5,500 gross tons each, which embody the highest ideals of a passenger carrier and high speed, were put on the ferry service between Nagasaki and Shanghai at a heavy sacrifice on the part of the N.Y.K. These high speed vessels, making the entire distance in about 27 hours created a new epoch in the near sea passenger traffic of the East. In 1924, this expensive service was extended to include Kobe, thus securely linking up the two commercial centers of Japan and China to the great benefit of the travelling public in general.

In March, 1923, the question, which had been long pending with regard to the proposed separation of the near seas services from the business of the N.Y.K. was at last settled, culminating in the establishment of the Kinkai Yusen Kaisha (The Near Seas Mail S.S. Company) with a share capital of Y.10,000,000. Out of this amount the N.Y.K. holds shares to the extent of Y.9,150,000. In lieu of cash payment to cover this holding, the N.Y.K. contributed twenty-two steamers of 54,772 tons gross, in addition to the greater part of their extensive landed and building property in Tokyo, Hakodate, Otaru, Keelung and Tientsin, and other valuable property consisting of steam launches, lighters, etc.

Merger with Toyo Kisen Kaisha

In May, 1926, the long disputed incorporation of the greater part of the T.K.K. services into the N.Y.K. at last materialized, by which the N.Y.K. transferred to its flag the Orient-California and the Orient-South American (West Coast) services, on payment of Y.6,250,000 to the T.K.K. This payment was made by shares paid up to the face value. In order to effect this disbursement the N.Y.K. increased its capital to Y.106,250,000, the paid up capital now standing at Y.64,250,000, further calls being left to the exigencies of business requirements.

As a result of this amalgamation, the N.Y.K. fleet was increased by eight steamers, aggregating 100,000 gross tons, viz. *Tenyo Maru*, s.s. *Shinyo Maru*, s.s. *Korea Maru*, s.s. *Siberia Maru*, s.s. *Anyo Maru*, s.s. *Rakuyo Maru*, s.s. *Bokuyo Maru* and s.s. *Ginyo Maru*. The operation of one government vessel, the s.s. *Taiyo Maru*, has also been transferred to the N.Y.K.

New Vessels Built

With the completion in recent years of a number of new motor vessels—*Asama Maru*, *Tatsuta Maru* and *Chichibu Maru* on the trans-Pacific route, the *Terukuni Maru* and the *Yasukuni Maru* on the European run, *Hikawa Maru*, *Heian Maru* and *Hiye Maru* on the Seattle route, and the *Heiyo Maru* on the South American line together with six new motor vessels of 7,200 tons *Nagara Maru*, *Nako Maru*, *Naruto Maru*, *Noshiro Maru*, *Nojima Maru*, *Noto Maru* on the New York route, forming a new express freight service.

A Curb on Propaganda

(Continued from page 330)

another where his great wealth and contributions to the campaign fund would enable him to influence foreign policy. What that policy was, is indicated in the above questions.

The Publisher of the *Far Eastern Review* has the deepest respect for the kindly Chicago philanthropist but he nevertheless insists that the above questions are relevant and necessary if the people of

the United States are to understand something of the forces which are slowly but surely driving the nation into war in the Pacific. The *Far Eastern Review* has combatted almost single-handed these influences on the ground in the Far East and has been boycotted, penalized, defamed and hounded by a campaign of vilification and abuse that has few counterparts in the annals of American journalism.

The bill introduced by Representative MacCormack offers an opportunity for a complete investigation into the conduct of American-owned newspapers published abroad that will throw a flood of light on the publicity methods of foreign governments and reveal to the American people the inside of a campaign to make them the cat's paw for other Powers in a war in the Pacific. The *Far Eastern Review* invites such an investigation.

The Situation in Shanghai

(Continued from page 333)

that the forces now assigned to this service will remain in Shanghai.

How Changes can be Made

A lesser detail of the grievances that have been brought forward by Japanese spokesmen has to do with the special charge of \$5 a month required from telephone subscribers residing in Chinese territory along roads under municipal control but outside of Settlement limits. This is in the area immediately north of the Settlement where thousands of Japanese reside, and in support of the criticism they make the Japanese point out that no such extra charge is assessed against telephone subscribers residing on extra-Settlement roads in the district west of the Settlement where the population is largely British and American. The special charge imposed on subscribers along the northern extra-Settlement roads it is asserted is the result of an agreement between the Shanghai Telephone Company and the Chinese Telephone Administration of greater Shanghai arrived at with the approval of the Shanghai Municipal Council.

Whatever changes may be brought about as a result of the outpouring of criticism of existing conditions, it is believed, will have to be brought about under the terms of the Land Regulations, because before any change in this ancient charter can be effected the assent of the Nanking Government must be obtained. Agreement in Nanking, it is true, swiftly was obtained when amendments to the Land Regulations providing for Chinese representation on the Shanghai Municipal Council were proposed, but it is foreseen that the Chinese Government will be slow to accord any approval of modifications that might possibly in any way strengthen the position of the foreigner or lessen the power and prestige that the Chinese thus far have gained. It will be possible, however, to alter drastically the existing order of things to conform in no small measure with Japanese aims and still keep within the terms of the Land Regulations. In the words of Captain T. Otori, Editor of the *Shanghai Mainichi*, the Japanese have not as their main purpose an increase of their own power, but they desire "to reform the Shanghai Municipal Council so that it will better represent Shanghai and operate more efficiently in Shanghai's best interests." This certainly appears to be a reasonable aspiration and it cannot be doubted that it will be met fairly.—val

Zeppelins for Japan

The report that the State Policy Council for Aeronautical Research in Japan had decided to set up a joint Japanese-Manchuokuo airship company, with a capital of Y.20,000,000 (published in *The Aeroplane* on November 28), is confirmed by later news that Herr Ferdinand Heye, the German Commercial Commissioner in Manchukuo, has visited Tokyo to get full details of the proposition, and has left for Berlin by way of Kobe and San Francisco to discuss the matter with the German Government.

Financial and other aspects of the sale of several Zeppelin airships to the proposed new company will be considered, and Herr Heye will discuss the whole question of German investment in Manchukuo. He is expected back in the Far East next March. The airship company will probably be called the Pacific Airways Co.

A Remarkable Railway Achievement

Manchoukuo State Railways Standardizes Gauge of Hsinking-Harbin Line, Distance of 240 Kilometers within Space of Three Hours

An epoch making project in the history of railway engineering in the Far East was undertaken by the State Railways of Manchoukuo on August 31. The project was to standardize the old gauge of 1.524 meters (5 feet) between Hsinking and Harbin, a distance of about 240 kilometers to the 1.435 meter-gauge (4 feet 8½ inches), the same as that of the South Manchuria Railway which is considered as standard in American and European continents.

From the standpoint of railway transportation, it is quite unnatural and inconvenient to cut a straight line at a point half way as was the case in the line between Dairen and Harbin which was severed at Hsinking. To make matters worse, the railway north of Hsinking had been under the management of the Chinese Eastern Railway as its southern line with five feet gauge while the section south of Hsinking was under the management of the South Manchuria Railway with four feet 8½ inch-gauge. The through traffic on this line, therefore was greatly impaired, for all passengers were required to change trains and goods had to be transhipped at Hsinking. However, now that the Chinese Eastern Railway has been transferred to Manchoukuo and that the latter has entrusted its management to the South Manchuria Railway the problem of difference in the management was practically solved; consequently what remained was the technical problem of narrowing the gauge from Hsinking to Harbin, which was highly important for efficiency in railway transportation.

Moreover it was expected that this undertaking would be the greatest event ever to occur in the annals of railway history in the Orient not only because of the speed with which the change had to be completed, but also because it would tax the men to their utmost efficiency and skill in order to make it a success.

The actual operation of the project took place between 5 and 8 a.m. on the morning of August 31. About 2,000 trained workers and expert supervisors participated in the work. The estimated cost of the project, exclusive of special work on bridges and wheel repairs, is about Y.700,000.

The whole project was divided into three stages, namely, the preparatory stage, the stage for actual work, and the final stage in which a finishing touch was given.

The project required preparation of the utmost care. The greatest difficulty arose from the fact that the old gauge was only about 89 m.m. or 3.503 inches wider than the standard gauge, making it impossible to lay a new line inside the track in advance, for then the bottoms of the new and existing rails would overlap. Consequently, rails on one side of the track had first to be freed of spikes and removed to the new position.

Preparatory Stage

The following is a brief summary of the preparation work:

(1) Preparatory work for the straight line sections.

(a) Nearly two-thirds of the ties for the entire line being defective, were removed before August 15.

(b) All tie-plates were removed prior to August 29.

(c) In order to prevent the space between the two rail-ends becoming too narrow or rails to bulge out as a result of enlargement of diameter of the curves due to the narrowing operation, precautionary steps were completed by August 15.

(d) At points where the length of straight line is too short and impossible to insert a fixed straight rail or "S"-shaped curve rail between two switch points or between two opposing curves, respectively the ties were marked to show proper line of connection to which rails could be accordingly adjusted at the time of the narrowing operation.

(e) In preparing for the removal of rails the following steps were taken:

On the straight line sections, the inside spikes were removed from every other two consecutive ties and on the curved-line sections from every other tie. And in the new position of the rails inside spikes were nailed in as far as two-thirds of their length in advance.

In case of bridges, rails on both sides of the track were removed. Therefore, the guard rails on both sides were previously removed to the new position and the inside spikes of both rails on every other tie were pulled out. Then, in the new position the inside spikes were nailed about two-thirds of their length on every other tie.

(f) In order that the spikes may be more easily pulled out, all were well hammered to remove rust.

The narrowing of switch points meant the removal of rails on one side of the track (section where there are guard rails). The new place of connection of the crossing with the straight line, the new position of the leading curve rail and the new positions in general were marked in ink on the ties. When found necessary the spikes were nailed in about two-thirds of their length.

The detailed preparations are summarized below.

(1) The ballast, etc., scattered on ties and impeding the removal of rails was cleared to a width of 30 m.m. from the new inside position, and ballast below the rail base was dug out to the depth of about 50 m.m. This process was also applied to the whole line.

(2) In order to make the removal easy the rust-removing-hammering was done to all spikes.

(3) On every other the spikes were nailed in the same manner as mentioned under "E" of the foregoing paragraph.

(4) The bolts or screws, used for fastening the slide-plates and rail-ties by the former management were previously changed to spikes.

(5) The bolts were loosened and tightened again after oiling and taking the rust off to make the work for changing connecting levers easier.

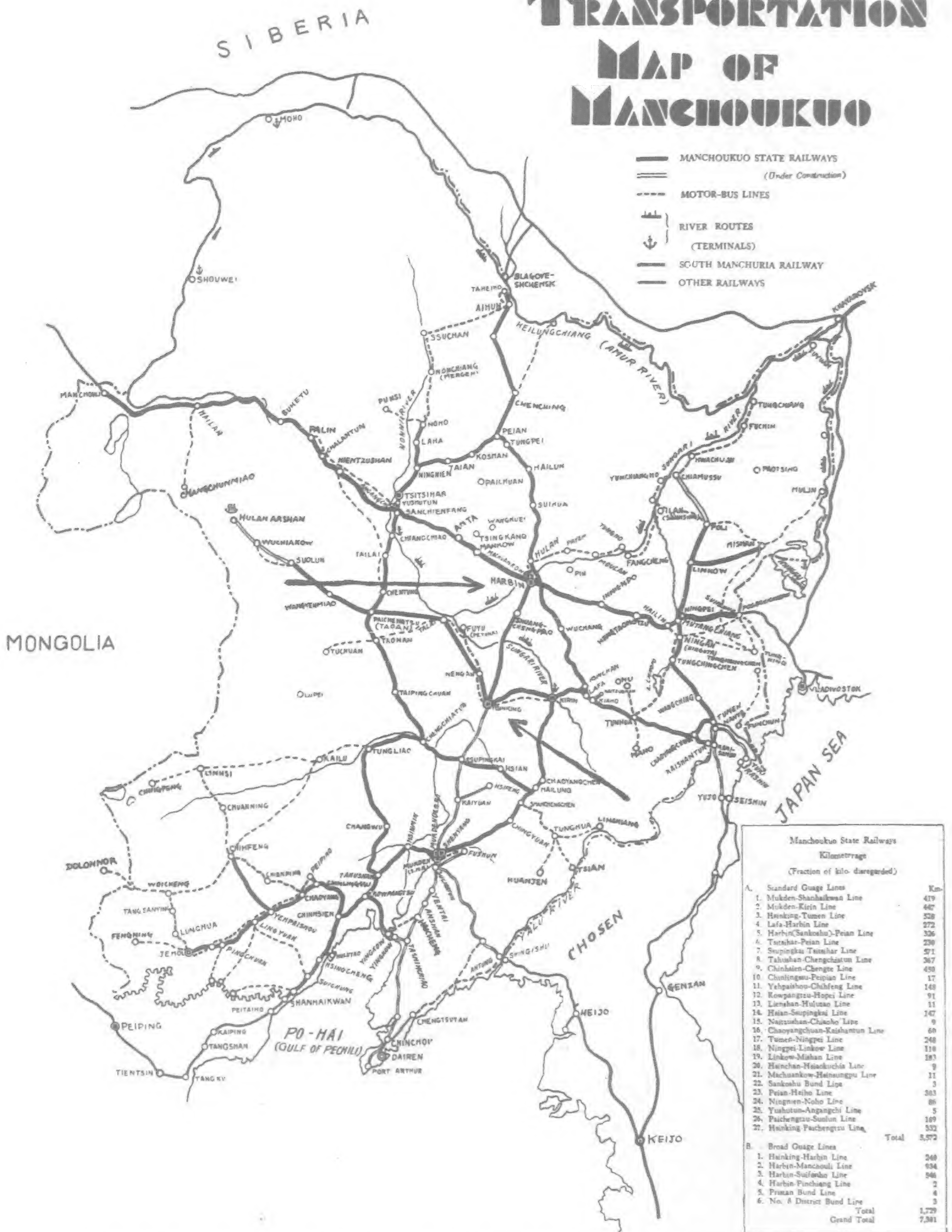
(6) The place where the rails were moved on the ties was thoroughly cleaned. Those ties which were too deeply cut in were renewed.

(7) Since a turn-buckle has to be attached to the center of the connecting lever, the length and ends of the new connecting levers were made to fit in between the rails.



The South Manchuria Railway stream-lined super-express "Asia" that now makes run Dairen to Harbin in 13 hours, 28 minutes

TRANSPORTATION MAP OF MANCHOUKUKUO



The Arrows on the Map Above point out the Section of the Manchoukukuo State Railways between Hsinking and Harbin where the remarkable project of standardizing the gauge was carried out on the morning of August 31 last. This section formerly was the Chinese Eastern Railway, which was acquired by the Manchoukukuo Government



Showing preliminary work of adjusting the sleepers in preparation for the change of gauge



Showing the narrowed gauge



The work of narrowing the gauge on a bridge



The trial train that was sent over the narrowed track after completion of the work as it arrived at Taolaichao

Main Work

After receiving a signal from the works headquarter in Harbin at 5 o'clock on the morning of August 31, about 3,000 competent workers, 15 men each for a distance of two kilometers, began work.

The outside spikes were already loosened as explained in the foregoing paragraphs on preparatory work. All inside spikes were completely taken out and the rails then moved to the new place where the spikes had already been placed. When the removal was completed the inside spikes were nailed in on every other ties.

The work on the junction points was carried out by various methods and it is rather more difficult to explain the work than on the straight line sections; however, the work in general can be itemized in the following manner:

(1) As soon as the work started, about eight men began pulling out the spikes, and two men taking off the connecting levers. Those who were in charge of the latter work and the group working on bolts joined the former group after their work was done.

In pulling out the spikes, all inside spikes were pulled out entirely while the outside spikes, except those impeding the removal of rails, were partly pulled out.

(2) In the next step the rails were removed to their new position where the spikes were already nailed in two-thirds of their length.

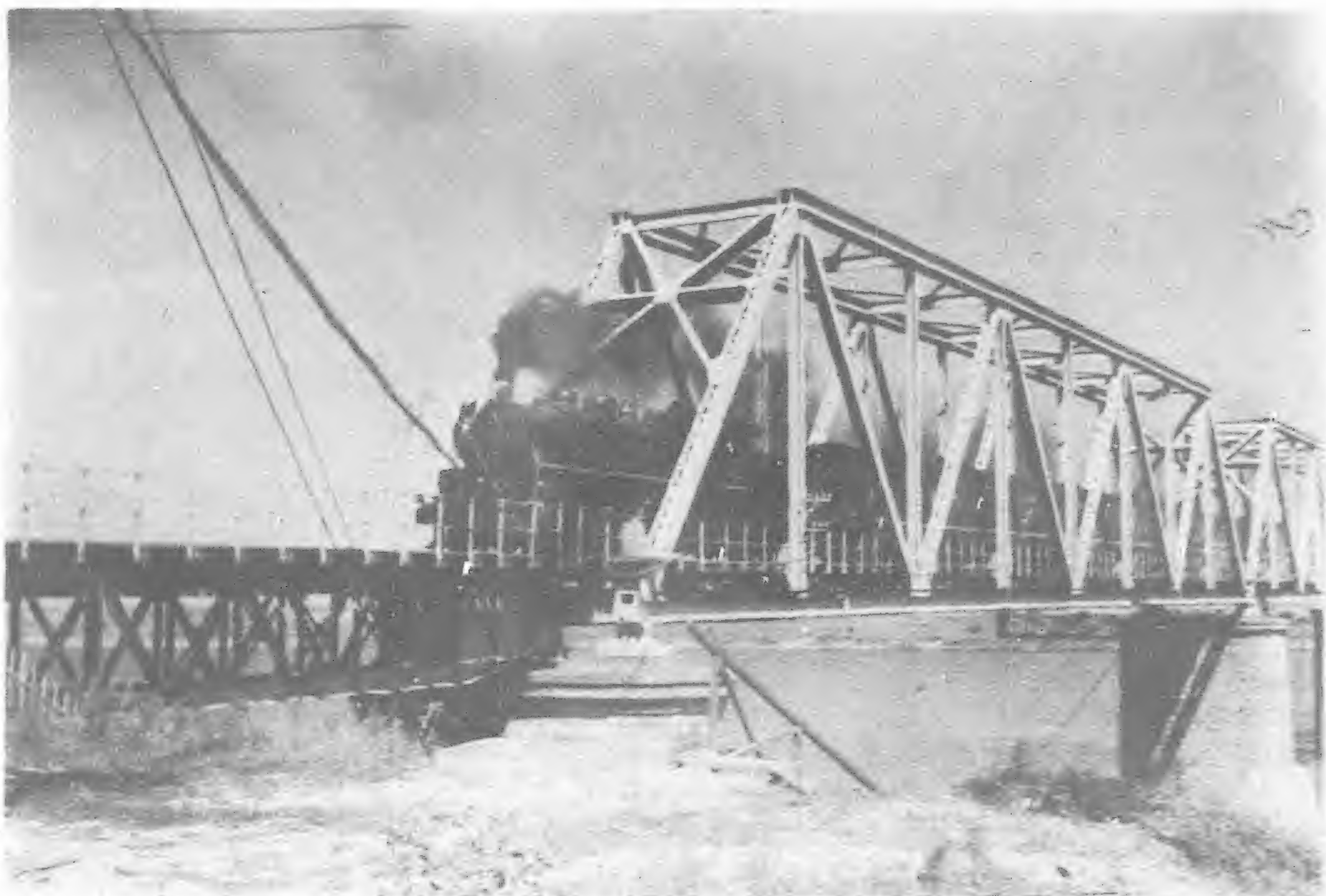
(3) After the rails were removed, two men fixed the connecting levers to their places and six men straightened out the gauge and nailed the spikes with the assistance of another four men who primarily engaged in spiking.

(4) After this work was completed the 10 men proceeded to the next junction point while the two men pulled out all outside spikes. Then a thorough examination was given to this already narrowed junction to make sure that there was no obstacle in running the trains.

(5) Since the curved leading rails were not to be changed, special attention was paid to give the rail a smooth lead. Since there was no time to fix the slide-plates with bolts or screws, they were fixed by spikes.

When it became necessary to place auxiliary plates at the point and heel of the switch it was left till later, after new holes for bolts had been bored.

When the work was completed each supervisor telephoned to the section manager by his portable telephone making a brief report on the work and the exact time of its completion. The section manager then reported the same to the division chief who in turn telephoned the commanding officer at Harbin who after receiving such reports ordered the running of the trial train, the result of the trial was immediately reported to headquarters from where



The trial train seen crossing the Sungari River Bridge after completion of the work

the same was made to the General Director at Mukden. And then, the regular train schedule was ready to be resumed.

IV In the final stage, finishing touches are to be given to complete the work.

The project when completed in full will bring smoother and quicker traffic between South and North Manchuria. For instance the "Asia," super-express train of the South Manchuria Railway which is now running between Dairen and Hsinking in eight and a half hours, is expected to run between Dairen and Harbin in 13 hours and 28 minutes. This means a saving of six hours as compared with the present quickest possible rail connections between the two cities which is 18 hrs. 30 minutes. In other words the "Asia" will cover the distance between Hsinking and Harbin in three hours and 58 minutes while the present train covers it in seven hours and 30 minutes. The rest of the time saved accrues from the elimination of waiting time at Hsinking for changing trains.

With respect to goods traffic, the elimination of transshipment at Harbin and the time saved will afford immeasurable benefit to the shippers and public by the lessening of damages due to transshipment and transporting of perishable goods, such as, fish, fruit, etc., more rapidly for the consumption of people in the north who are remote from such supplies.

Thus, the extent to which the consummation of this project will contribute to the development of social, economic and industrial life of the new State, locally as well as with Japan by providing closer and quicker connections through Dairen, Antung or Tumen can be easily imagined.

MICA FOUND IN CHOSEN

Large mica deposits, the total area of which covers 12,250 acres, have been discovered in North Chosen by an electric merchant in Osaka. The domestic output of mica, necessary for the national electric industry, has been very small. Mica has been purchased from India and Brazil to the amount of some Y.2,700,000 per year.

The discoverer of the mica deposits is Teruaki Nakagawa, proprietor of the Hinomaru Electric Co. at Ogimachi, Kita-ku, Osaka. The deposits are found on the Matenrei plateau, Chohakumen, Kisshu-gun, Kankyo-Hokudo, Chosen, in the vicinity of which is the Hoshu mine, regarded as the mica-producing center of Japan.

Mr. Nakagawa left on the expedition on March 24, this year, aided by Dr. Tadae Shono, of the Osaka municipal industrial laboratory, and Tokichi Boku, assistant professor of the Keijo higher technical school.

Organizing a party of 30 members, Mr. Nakagawa surveyed the Matenrei plateau, 75 miles square, for nearly a month, discovering

17 mica deposits. Ore presented to the Chosen government-general as samples is said to be superior in quality.

After filing application with the government-general to exploit the deposits, Mr. Nakagawa returned to Osaka on May 8.

"I have been studying the Matenrei plateau for many years, but I was puzzled as to whether it would bring commercial profit, the place being far from means of transportation," said Mr. Nakagawa. "But, in the current survey, I found a volume of superior mica far beyond my expectations. I wish to start exploitation as soon as possible."

Expert Takahama of the mining section of the Chosen government-general said: "I think the samples are reliable, as the deposits discovered are situated in the vicinity of the Hoshu mine and the Kisshu mica mine, from which mica is now being taken. It is not known, however, how large the deposits are, as there has not been any special survey. The sample presented to the government-general was of fine quality."

Diesel Traction Developments in Manchoukuo

DIESEL traction was introduced into Manchuria in 1931, when two heavy locomotives with electric transmission were set to work in shunting service and on local goods trains. One was powered by a 700 b.h.p. M.A.N. engine and one by a 750 b.h.p. Sulzer engine. These locomotives were followed in the next year by two 250 b.h.p. Diesel-electric railcars with Sulzer engines and bodies built at the Shakako works of the South Manchuria Railway. Subsequent development has incorporated both European and Japanese products. In 1933 two very heavy double-bogie shunting locomotives with the AIA-AIA wheel arrangement were acquired from Japan, and one of them is illustrated here. Last year a light double-bogie railcar was built in the Shakako workshops of the S.M.R. and fitted with a 120-130 b.h.p. A.E.C. engine sent out from England, and at the present time six four-car diesel-electric train sets are under construction at Shakako, four of them are to be fitted with Sulzer engines and two with a Japanese make. A possible future development is the construction of streamlined trains for a super-speed service between Dairen and Hsinking. In the compilation of the following notes on the S.M.R. diesel stock, "Diesel Railway Traction," had the assistance of Mr. S. Nonaka, the chief mechanical

engineer, under whose direction the various diesel vehicles have been built.

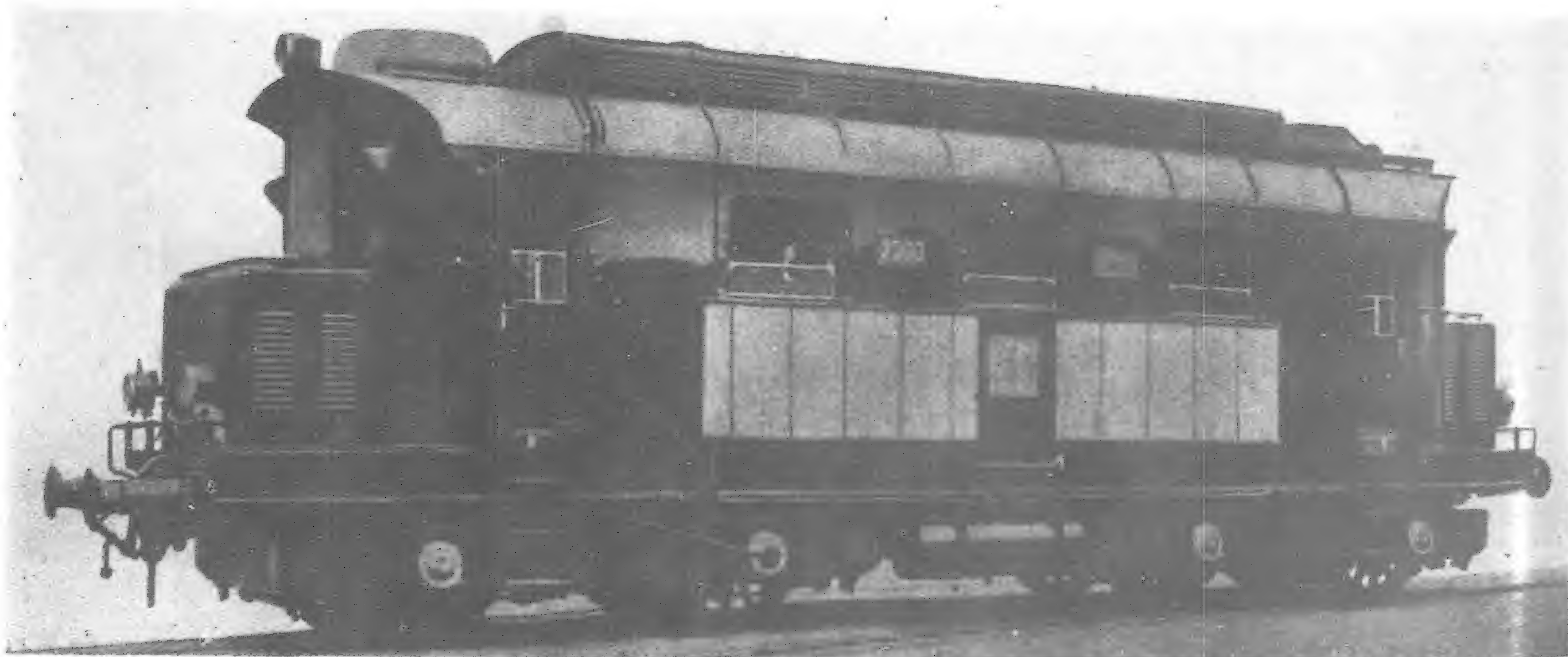
Diesel Locomotives

The two diesel locomotives of 1931 were purchased in order to give a trial to diesel traction with the products of different firms, and the operating characteristics of both units are almost the same. Locomotive No. 2000, as illustrated, was supplied by Sulzer as main contractor, and has one of that company's four-stroke engines developing 750 b.h.p. at 620 r.p.m. in eight cylinders with a bore of 310 mm. (12.2-in.) and a stroke of 370 mm. (14.5-in.). Cooling of the engine circulating water is carried out in two radiators mounted on the cab weatherboard, and air is drawn between the gilled tubes by a fan mounted in the roof. The lubricating oil is not cooled in certain elements in the water radiator tanks, but in entirely separate elements secured to the outside panels of the engine compartment.

Oerlikon electrical equipment is installed, and consists of a 500 kw. (maximum) direct coupled main generator and a 50 kw. 150-volt overhung auxiliary generator. The normal output of

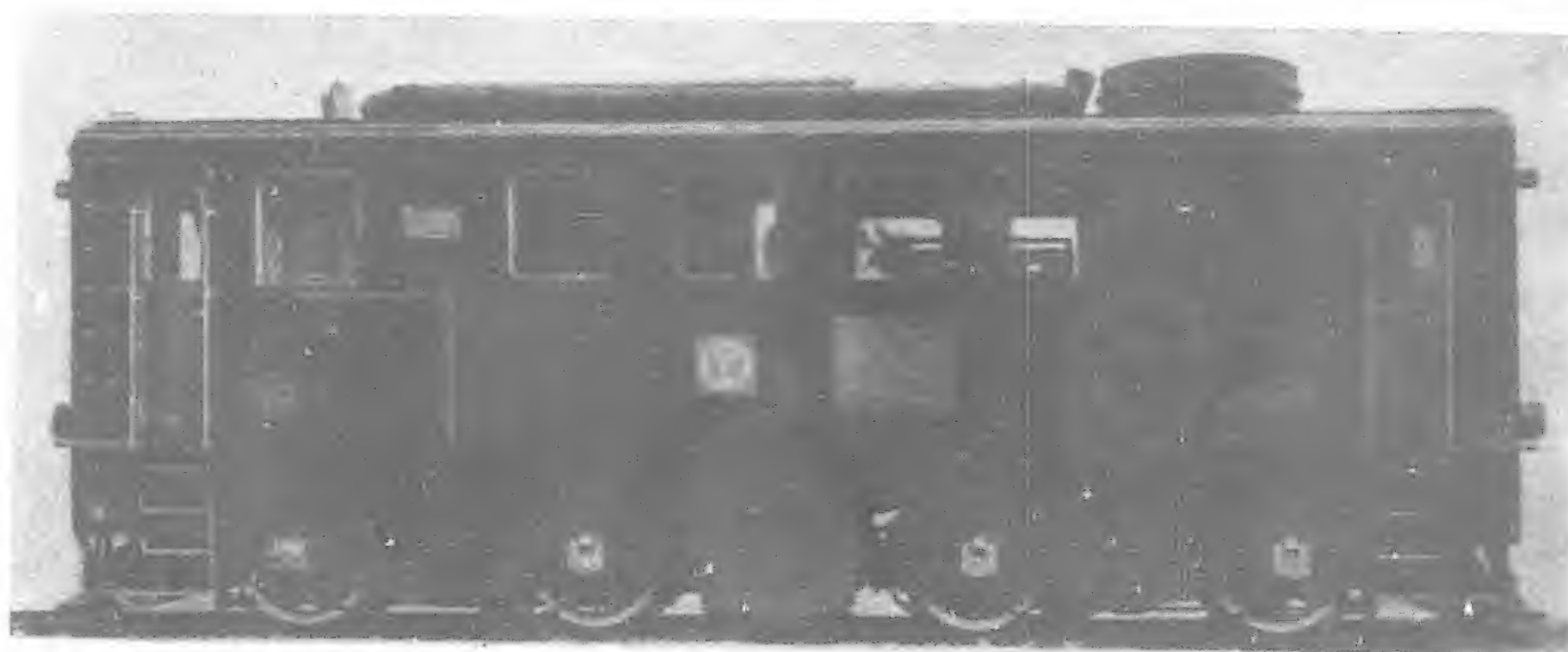


Japanese-built 750 b.h.p. Diesel-electric shunting locomotive on the South Manchuria Railway



750 b.h.p. Diesel-electric locomotive built by Sulzer Bros.

the main generator corresponds to 750-volts 700 amp., but a maximum starting current of 1,900 amp. can be delivered. The four 135 h.p. nose suspended traction motors operate at a maximum voltage of 750, and drive the 1.12 m. (43-in.) wheels through 5.16: one spur gearing. The engine is started electrically, current being supplied for this purpose to the main generator by a 130-volt 400 amp. hr. storage battery. The bogies have a wheelbase of 2.5 m. (8-ft. 2½-in.) and are pitched at 6.7 m. (21-ft. 11-in.) centers; the locomotive extends over a total length of 13.3 m. (43-ft. 8-in.) and weighs 81.6 tonnes (80.3 tons) in working order. The maximum tractive effort is 16.2 tonnes (35,750 lb.), and the top speed 60 km.p.h. (37.3 m.p.h.).



General view of Esslingen-M.A.N. oil locomotive, South Manchuria Railway

Although generally similar in operating characteristics, locomotive No. 2001 presents a different appearance and has totally different mechanical portion details. The engine is of M.A.N. manufacture and has a rated output of 700 b.h.p. at 700 r.p.m. in seven 280 mm. by 380 mm. (11-in. by 15-in.) cylinders. It incorporates direct injection in place of the pre-combustion chamber head of the Sulzer engine. The electrical equipment was built by Brown Boveri and embodies a modified Ward Leonard control. The main generator has a maximum capacity of 450 kw. (435 kw. normal) at a maximum voltage of 750. The compound-wound 150-volt auxiliary generator is of the overhung type with a capacity of 68 kw., and the four traction motors are of 134 h.p. and transmit their torque to the wheels through gears with a ratio of 4.7 to 1. The main difference in the construction of the mechanical portion (which was built by the Maschinenfabrik Esslingen) compared with the Sulzer locomotive is that the bogies of the Esslingen take the superimposed weight through spring-supported spherical sidebearers, the center pin acting as a pivot only. The maximum tractive effort and speed are the same as those of locomotive No. 2000.

When further shunting locomotives were required in 1933, Japanese-built units (Nos. 7000 and 7001) were acquired, and they embody certain features found in Nos. 2000 and 2001. Although the maximum tractive effort of the 1933 locomotives is the same (35,750 lb.) as that of the two earlier units, the weight is considerably greater, totalling 118 tonnes (116.5 tons) in working order. Two six-wheel bogies were necessary to distribute this weight without exceeding the permissible axle-load, and the two outer axles of each bogie are driven by 225 h.p. motors with a gear reduction of 4.39 to 1. The six-cylinder Niigata Diesel engine develops 750 b.h.p. at 600 r.p.m. and in cylinder dimensions is a combination of the M.A.N. and Sulzer designs, the bore being 310 mm. (12.2-in.) and the stroke 380 mm. (15-in.). The engine circulating water is cooled in two radiators having separate electrically-driven fans. The main generator is of 450 kw. capacity, with a differential compound winding, and the electrical control is on the modified Lemp system. The storage battery used for engine starting and for the auxiliaries is of 112-volts 458 amp. hr. capacity.

Railcars and Trains

The first diesel cars of the South Manchuria Railway were set to work in 1932. They incorporate 250 b.h.p. Sulzer engines similar to the Armstrong-Sulzer engine used in the L.N.E.R. *Tyneside Venturer*, and Brown Boveri electrical equipment with control on the modified Ward Leonard system. These cars have a normal seating capacity of 65 third-class passengers, but a special trailer has been built for attachment to each car and has seating accommodation for 104 passengers.

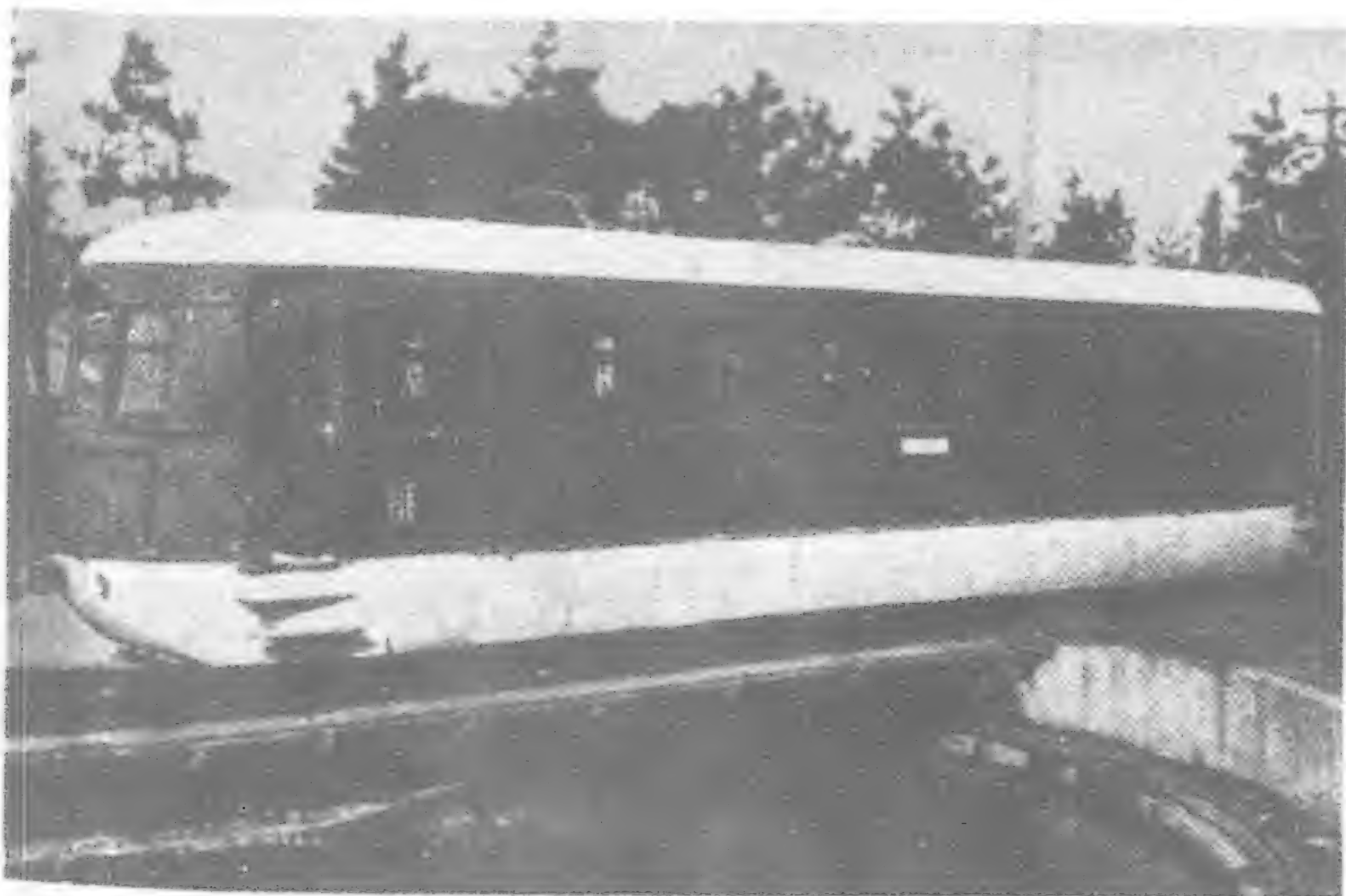
An engine output of 250 b.h.p. is obtained at a rotational speed of 795 r.p.m. (20 r.p.m. above the speed of the engine in the *Tyneside Venturer*). The direct-coupled shunt-wound d.c. generator has a rating of 170 kw. and a maximum voltage of 750; a maximum current delivery of 850 amp. can be obtained. The overhung exciter delivers current to the main generator field and to the auxiliaries at a voltage of 150, and has a rating of 11 kw. The two nose-suspended traction motors have a maximum voltage of 750 and are rated at 96 h.p.; they drive the 1.04 m. (41-in.) wheels by single spur reduction gear with a ratio of 5.5:1. The peak tractive effort at the rail is 3,500 kg. (7,750 lb.) and on the one-hour rating, 2,000 kg. (4,400 lb.) at 25 km.p.h. (15.5 m.p.h.). As built, the cars had a maximum tractive effort of 4,000 kg. (8,800 lb.) and a top speed of 65 km.p.h. (40.4 m.p.h.), but the characteristics have been modified to give a top speed of 80 km.p.h. (49.7 m.p.h.) with a consequent reduction in the peak tractive effort. Each car weighs 49.23 tonnes (48.5 tons) in working order, but without passengers, and a trailer tares 24.2 tonnes (23.9 tons.)

Of much lighter design the third railcar of the South Manchuria Railway was built in 1934, and is powered by an A.E.C. engine. This is rated by the S.M.R. at 120 b.h.p. at 1,800 r.p.m. The vehicle is of the double-bogie type with the side panels carried down close to the ground level to give a semi-streamlined contour. Only one driving compartment is fitted, and the seating accommodation is limited to third class. The maximum speed is 80 km.p.h. (49.7 m.p.h.), and the weight in working order but without passengers, 23.4 tonnes (23 tons). This car is now in service on short main line trips and on local branches in the vicinity of Dairen.

Of the six four-car trains, two are in service; but it will be the end of the summer before the sets which are to be powered by Sulzer engines go into service. The engine and luggage compartments are arranged in a short vehicle at one end of the train. A driving compartment is fitted at each end of the train, but normally the set will run with the engine end leading, and use made of the triangles and loops at certain main-line stations to keep this end to the front. Only when working suburban trains on the Dairen to Port Arthur line will advantage be taken of the double-end drive. In view of their large seating capacity, 28 second class and 258 third class, these trains should be particularly suitable for suburban work, as well as for semi-fast work on the main line.

Both the Sulzer and Niigata engines will develop 500 b.h.p. at 500 r.p.m. in six cylinders 250 mm. by 310 mm. (9.87-in. by 12.2-in.). The differentially-wound separately-excited main generator is rated at 290 kw. and the compound-wound exciter is of 20 kw. capacity, with a voltage of 130. The four traction motors are mounted on the end bogies and are rated at 150 h.p. each; they drive the 840 mm. (33-in.) wheels through 2.26:1 reduction gearing. The lighting, and the auxiliaries when the

(Continued on page 351)



A.E.C. engined 130 b.h.p. Diesel railcar, South Manchuria Railway

An Outline of Progress and Position of the Electrical Industry in Japan at the End of 1933

THE electric light and power industry of Japan dates from November, 1887, when the Tokyo Electric Light Company began the lighting of 75 incandescent lamps, using a home-made generator installed at the first commercial station at Nihonbashi, Tokyo.

In 1888 three more generating stations were constructed by the same company. In September of that year the Kobe Electric Light Company and in the following year the Osaka Electric Light Company were incorporated; later Kyoto, Nagoya and Yokohama were also supplied with electricity.

At the end of 1890 total generating capacity in the country was about 1,500 kw, including two 80 kw generators which were installed in Kyoto in conjunction with the construction of the Lake Biwa Canal. These went into service from May, 1890 and were the first hydro-electric plants used in the country.

Kyoto was also the first city to have tram-cars on the streets, taking energy from an overhead line; the Kyoto Electric Railway Company commenced running them in February, 1895. This example was followed by the Nagoya Electric Railway Company and others in quick succession in 1898 and after.

With gradual growth of the electrical industry, the scale of power generation and transmission became larger. Beginning with the success of the Koriyama Silk Spinning Company, Fukushima, in transmitting 10,000-v over a distance of 15 miles in 1899, long-distance high-tension transmission has become a feature of subsequent projects in various districts.

It was not until 1907 that a 55,000-v transmission was realized over a distance of 50 miles, from a 15,000 kw hydraulic plant at Komabashi (Yamanashi prefecture) on the Katsura River to the metropolis by the Tokyo Electric Light Company.

The industrial activity following the war in 1904-1905 stimulated the electrical industry to rise so suddenly; as compared

with 44,000 kw at the end of 1903, total generating capacity at the end of 1907 was estimated at 110,000 kw, and 780,000 lamps and 8,000 kw of motors were connected.

Steam power predominated in those days. At the end of 1903 there was 31,000 kw of steam power plants against 13,000 kw of water wheels.

The recognition of the economical importance of hydro-electric power led to the organization of the Government Water Power Survey in 1910 under the direction of the Minister of Communications and its three year work of estimating potential water power throughout the country did much towards promoting the hydro-electrical development in the years ensuing.

Thus, water power surpassed steam during 1912, and rapid strides of progress in developing large water power sites, combined with the introduction of large scale generation backed by an enormous amount of capital to meet emergent demand for electricity in the boom years during and after the European War, brought forth a new era in the electrical industry. Total generating capacity at the end of 1919 was over 1,100,000 kw, consisting of about 700,000 kw hydraulic and about 400,000 kw thermal power plants.

But it was afterwards found that the minimum flow estimated by the Government Water Power Survey at limited number of more preferable sites was no economical basis, and the adoption of more and more flow as a basis of water power development was the tendency of engineering practice in those days.

Consequently, the Survey was resumed from 1918 to 1922 with the view of ascertaining available hydro-electric power for industrial purposes from the standpoint of economical utilization of water power resources.

And this second survey revealed that water power available at 2,822 more preferable sites amounted to 4,786,000 kw on the basis of the minimum flow and 10,511,000 kw at the maximum.

TABLE 1.—NUMBER OF ELECTRICAL UNDERTAKINGS AT THE END OF 1933 CLASSIFIED BY THEIR OBJECTS AND TYPES

Objects of undertakings	In operation	Under construction	Total	Types of undertakings									
				Private				Public					
				Joint stock companies	Co-partnership	Others	Total	Prefectural	City	Municipal association	Towns	Villages	Total
Electricity supply ..	818	25	843	698	9	16	723	5	15	12	22	66	120
(1) Retail supply ..	531	6	537	414	9	7	430	3	4	12	22	66	107
(2) Electric traction ..	161	13	174	168	—	—	168	—	6	—	—	—	6
(3) Wholesale supply to (1) and (2) ..	82	6	88	78	—	9	87	1	—	—	—	—	1
(4) (1) and (2) combined ..	43	—	43	37	—	—	37	1	5	—	—	—	6
(5) (2) and (3) combined ..	1	—	1	1	—	—	1	—	—	—	—	—	—
Private Plants ..	7,347	251	7,598	—	—	—	—	—	—	—	—	—	—
Total ..	8,165	276	8,441	—	—	—	—	—	—	—	—	—	—

TABLE 2.—NUMBER OF ELECTRICAL UNDERTAKINGS AT THE END OF 1933 CLASSIFIED BY THEIR OBJECTS AND POWER SOURCES

Objects of undertakings	Hydro-electric power			Thermal power			Power purchased			Total		
	In operation	Under construction	Total	In operation	Under construction	Total	In operation	Under construction	Total	In operation	Under construction	Total
Electricity supply ..	345	7	352	56	3	59	417	15	432	818	25	843
(1) Retail supply ..	267	1	268	43	2	45	221	3	224	531	6	537
(2) Electric traction ..	2	—	2	2	1	3	157	12	169	161	13	174
(3) Wholesale supply to (1) and (2) ..	60	6	66	10	—	10	12	—	12	82	6	88
(4) (1) and (2) combined ..	15	—	15	1	—	1	27	—	27	43	—	43
(5) (2) and (3) combined ..	1	—	1	—	—	—	—	—	—	1	—	1
Private plants ..	1,189	117	1,306	1,063	21	1,084	5,095	113	5,208	7,347	251	7,598
Total ..	1,534	124	1,658	1,119	24	1,143	5,512	128	5,640	8,165	276	8,441

TABLE 3.—GENERATING CAPACITY OF ELECTRICAL UNDERTAKINGS AT THE END OF 1933 CLASSIFIED BY THEIR OBJECTS AND POWER SOURCES

TABLE 3.—GENERATING CAPACITY								
Power sources	Electricity supply undertakings						Private plants	Total
	(1)	(2)	(3)	(4)	(5)	Total		
	Retail supply	Electric traction	Wholesale supply to (1) and (2)	(1) and (2) combined	(2) and (3) combined			
	kw	kw	kw	kw	kw	kw	kw	kw
Hydro-electric power	2,475,969	46,155	452,198	1,513,642	1,580	4,489,544	183,259	4,672,803
In operation	1,877,411	1,878	363,920	841,523	1,580	3,086,312	82,393	3,168,705
Under construction	598,558	44,277	88,278	672,119	—	1,403,232	100,866	1,504,098
Thermal power (exclusive of internal combustion)	742,166	77,575	374,667	605,028	—	1,799,436	531,095	2,330,531
In operation	726,397	69,400	125,667	505,028	—	1,426,492	485,545	1,912,037
Under construction	15,769	8,175	249,000	100,000	—	372,944	45,550	418,494
Internal combustion	12,314	100	4,000	1,078	—	17,492	37,770	55,262
In operation	12,219	100	4,000	1,078	—	17,397	32,993	50,390
Under construction	95	—	—	—	—	95	4,777	4,872
Total	3,240,252	123,630	805,635	2,117,883	1,580	6,288,980	714,354	7,003,334
In operation	2,625,925	71,178	468,357	1,345,764	1,580	4,512,804	567,938	5,080,742
Under construction	614,327	52,452	337,278	772,119	—	1,776,176	146,416	1,922,592

TABLE 4.—NUMBER OF ELECTRICAL UNDERTAKINGS, 1924-1933

Year	Electricity supply undertakings			Total	Private plants	Total
	Electric light and power	Electric traction	Electric light, power and traction			
1924	618	63	48	729	4,197	4,924
1925	605	85	48	738	4,612	5,350
1926	585	99	48	732	4,755	5,487
1927	562	117	49	728	5,223	5,951
1928	543	128	49	720	5,376	6,096
1929	540	142	50	732	5,542	6,274
1930	533	152	48	733	5,975	6,708
1931	525	161	47	733	6,363	7,096
1932	608	161	47	816	6,582	7,398
1933	613	161	44	818	7,347	8,165

Note:—For the marked increase in number of the electricity supply undertakings in 1932 is responsible the fact that the revision of the Electrical Undertakings Law has raised a number of the private plants to the status of the qualified electrical undertakings.

them are the stations of the Daido Electric Power Company on the Kiso, the so-called Japanese Rhine and the Tenryu, those of the Nippon Electric Power Company on the Kurobe and other rivers in the Hokuyetsu district, those of the Shôwa Electric Power Company on the Shô and those of the Tokyo Electric Light Company in the Kôshin-etsu, Jôetsu and Aizu districts, and on the Agano, and the completion of the 154 kv transmission lines made not only overland transmission to Tokyo, Yokohama, Nagoya, Kyoto, Osaka and Kobe from out-of-the-way places in mountains possible, but the interconnection of plants also enabled them to interchange power and to attain greater economy in power generation.

In designing most of these hydraulic plants, progress in engineering on the one side and lowered price of coal on the other have made water power development much more efficient than before; for the recent practices to harness water power on the basis of six months' flow have made it possible for larger water

TABLE 5.—GENERATING CAPACITY OF ELECTRICAL UNDERTAKINGS, 1924-1933

Year	Hydro-electric power	Thermal power	Total	Rate of increase			Percentage		
				Hydro-electric power	Thermal power	Total	Hydro-electric power	Thermal power	Total
1924	1,474,357	763,146	2,237,503	12.7	1.1	8.5	66	34	100
1925	1,813,508	954,633	2,768,141	23.0	25.1	23.7	66	34	100
1926	1,965,970	1,236,644	3,202,614	8.4	29.5	15.7	61	39	100
1927	2,111,087	1,356,044	3,467,131	7.4	9.7	8.3	61	39	100
1928	2,290,351	1,531,703	3,822,054	8.5	13.0	10.2	60	40	100
1929	2,581,949	1,611,674	4,193,623	12.7	5.2	9.7	62	38	100
1930	2,797,637	1,601,677	4,399,314	8.4	—	4.9	64	36	100
1931	3,056,936	1,599,588	4,656,524	9.3	—	5.8	66	34	100
1932	3,105,930	1,827,131	4,933,061	1.6	14.2	5.9	63	37	100
1933	3,168,705	1,912,037	5,080,742	2.0	4.6	3.0	62	38	100

TABLE 6.—DEMAND FOR ELECTRIC LIGHTING, 1924-1933

Year	Number of consumers	Number of electric lamps installed	Number of electric lamps subject to meter tariffs		Average number of lamps installed per consumer	
			Contract tariffs	Meter tariffs	Contract tariffs	Meter tariffs
1924	8,976,991	24,273,954	5,271,877	2.2	14.9	10.5
1925	9,652,053	27,133,421	7,375,364	2.2	10.2	10.7
1926	10,165,739	29,967,460	8,882,605	2.2	10.7	10.6
1927	10,547,235	32,118,595	10,534,232	2.2	10.4	10.2
1928	10,847,432	33,718,074	11,840,012	2.1	10.1	9.8
1929	11,170,618	35,698,311	13,450,351	2.0	—	—
1930	11,352,372	36,601,627	14,571,207	—	—	—
1931	11,446,539	37,170,508	15,646,464	—	—	—
1932	11,530,440	38,048,413	16,882,164	—	—	—
1933	11,383,235	38,382,771	17,991,140	—	—	—

if based on the six months' flow, the annual average being 8,902,000 kw.

At most of these selected larger sites the development of water power with 200 to 400 km. transmission lines to the load centers has been completed one after another. Prominent among

TABLE 7.—PREFECTURAL DENSITY OF ELECTRIC LIGHTING (NUMBER OF ELECTRIC LAMPS INSTALLED PER HUNDRED OF POPULATION) AT THE END OF 1933

Local division	No. of lamps installed	Local division	No. of lamps installed	Local division	No. of lamps installed
Hokkaido	36.2	Toyama	56.3	Okayama	58.0
Aomori	37.2	Ishikawa	63.6	Hiroshima	59.9
Iwate	23.0	Fukui	70.0	Yamaguchi	36.4
Miyagi	38.1	Nagano	45.8	Kagawa	47.7
Akita	29.0	Gifu	51.5	Yehime	43.2
Yamagata	35.2	Aichi	66.4	Fukuoka	55.2
Hukushima	29.9	Miye	49.8	Saga	45.3
Niigata	48.5	Shiga	54.2	Nagasaki	36.1
Ibaragi	30.0	Kyoto	115.8	Kumamoto	48.8
Tochigi	34.2	Osaka	89.9	Oita	52.4
Gumma	44.2	Hyogo	68.1	Miyazaki	38.3
Saitama	38.0	Nara	62.9	Kagoshima	25.6
Chiba	38.9	Wakayama	51.8	Okinawa	6.1
Tokyo	115.4	Tokushima	42.8	—	—
Kanagawa	74.8	Kochi	42.0	Average	57.1
Yamanashi	49.0	Tottori	46.1		
Shizuoka	53.5	Shimane	46.4		

TABLE 8.—DEMAND FOR ELECTRIC LIGHTING IN 122 CITIES IN THE COUNTRY AND EACH OF THE LARGER CITIES AT THE END OF 1933

City	Number of consumers	Number of electric lamps installed	Average number of lamps installed per consumer
122 Cities (total)	4,394,852	21,864,282	5.0
Tokyo	1,100,729	6,554,180	6.0
Osaka	533,274	2,685,750	5.0
Kyoto	208,221	1,507,112	7.2
Nagoya	212,619	906,973	4.3
Kobe	177,033	883,533	5.0
Yokohama	144,270	597,080	4.1
Six larger cities (total)	2,376,146	13,134,628	5.5

power plants to have storage reservoirs or reserve steam plants ready for the demand in dry season.

No less striking has been the growth of electric railways, the total length of which was 100 km., 1,700 km. and 6,000 km. at the end of 1903, 1921 and 1933, respectively.

TABLE 9.—PERCENTAGE OF THE NUMBER OF ELECTRIC LAMPS INSTALLED UNDER CONTRACT AND METER TARIFFS, 1924-1933

Year	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	%	%	%	%	%	%	%	%	%	%
Total Number	100	100	100	100	100	100	100	100	100	100
Under contract tariffs	78	73	70	67	65	62	60	58	56	53
Under meter tariffs	22	27	30	33	35	38	40	42	44	47

While the number of electric power undertakings for public service has increased with the growth of the industry, the trend was towards centralization in ownership and control; the mergers and consolidations were resorted to by so many power companies that reduction in number of electric power undertakings was observ-

TABLE 10.—ANNUAL DEMAND FOR ELECTRIC POWER, 1924-1933

Year	Number of consumers	Number of kilowatts installed	Electro-motive power	Electric heating
1924	220,491	1,064,205	801,028	46,831.8
1925	263,436	1,236,709	1,003,865	87,567.1
1926	327,243	1,556,935	1,290,108	139,943.2
1927	361,618	1,797,133	1,510,659	186,759.7
1928	442,351	1,963,370	1,730,016	239,276.5
1929	501,996	2,269,988	2,009,260	257,141.8
1930	585,087	2,247,881	2,082,296	298,730.8
1931	693,213	2,650,524	2,383,803	328,079.2
1932	820,436	2,787,354	2,539,340	344,007.5
1933	1,117,112	2,968,927	2,657,100	327,370.0

Note: A larger proportion of the number of kilowatts installed at the end of 1933 was stipulated in the contracts.

ed until the revision of the Electric Power Undertaking Law in December, 1932, by virtue of which law those former proprietors of private power plants were raised to the status of qualified electric power undertakings, which number amounted in total 850 and 843 at the end of 1932 and 1933, respectively.

TABLE 11.—ANALYSIS OF THE DEMAND FOR ELECTRIC POWER AT THE END OF 1933

Total demand capacity installed	Demand capacity under contract								
	Electro-motive power			Electric heating, etc.			Total		
	Contract tariffs	Meter tariffs	Total	Contract tariffs	Meter tariffs	Total	Contract tariffs	Meter tariffs	Total
	kw	kw	kw	kw	kw	kw	kw	kw	kw
2,968,927	186,038	2,365,381	2,551,419	17,210	291,719	308,929	203,248	2,657,100	2,860,348

Adding to these 7,598 private power plants, which have steadily increased, made a total of 8,441 at the end of 1933, and their total capacity was 7,000,000 kw, of which 5,080,000 kw, consisting of 3,170,000 kw of water power and 1,910,000 kw of thermal power, has been developed, the rest being under construction.

TABLE 12.—ANNUAL COMPARISON OF THE DEMAND FOR ELECTRIC POWER UNDER CONTRACT AND METER TARIFFS

Year	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
	%	%	%	%	%	%	%	%	%	%
Total	100	100	100	100	100	100	100	100	100	100
Contract tariffs	25	19	17	16	12	11	11	10	9	7
Meter tariffs	75	81	83	84	88	89	89	90	91	93

TABLE 13.—DEMAND FOR ELECTRIC POWER BY INDUSTRIES AT THE END OF 1933

Industries	Kilowatts	Percentage
Textile industry	516,188	16
Metal material industry	258,718	8
Machine and tool making	147,944	5
Ceramics	170,478	5
Chemical industry	562,361	17
Lumber and wood working	135,497	4
Printing and binding	21,955	1
Food and drink	291,247	9
Micellaneous industry	67,133	2
Mining	366,279	11
Agriculture and fishery	69,712	2
Others	648,224	20
Total	3,255,736	100

As for the operation of the undertakings, the electric light and power industry, while suffering from the falling of demand for electricity, incident to the unheard-of depression of past years, have been facing the situation by resorting to combines, cartels and other rationalization policies.

The total investments have passed Y.5,200,000,000 and the earning power of this capital as a whole has been always sound, though declining of late. The increase in demand and the improvement of plants, always stimulating each other, have played

TABLE 14.—ANNUAL COMPARISON OF THE OUTPUTS GENERATED

Year	Outputs generated	Rate of increase
	kwh	%
1924	6,656,617,987	32.2
1925	7,734,871,006	16.2
1926	9,091,211,608	17.5
1927	9,746,104,610	7.2
1928	11,060,496,892	13.5
1929	12,207,749,306	10.4
1930	12,160,082,885	—
1931	11,892,215,264	—
1932	12,557,696,988	5.6
1933	16,961,724,058	35.1

an important part in betterment of electrical service, in quality and quantity, and are expected to do much towards promoting the cultural life of people in connection with the electrification of the railroads, household and agriculture, parallel with the rationalization movement.

II.—Number and Capacity of Electrical Undertakings

The tables 1, 2 and 3 show the actual number and capacity of electrical undertakings at the end of 1933.

TABLE 15.

Year	Route length	Passenger car-kilometers run	Number of passengers
	km	km	km
1924	2,395	298,038,130	1,626,844,868
1928	5,104	482,945,738	2,204,514,776
1933	5,976	533,825,592	1,878,222,916

In number of undertakings, the percentages of the public supply undertakings, the electric traction undertakings, the whole-sale supply undertakings having these two classes of undertakings as customers and the undertakings operating both public supply and electric traction to the total number of electricity supply undertakings were 65, 20, 10 and 5, respectively, and 85 per cent of the total represents private ownership, 96 per cent of which was joint stock companies including those under construction.

As to the distribution of hydro-electric and thermal power, greater proportion of the public supply undertakings and 53 per cent of private plants used hydro-electric power as power source and 47 per cent of the latter thermal power, and 38 per cent of the

TABLE 16.—FINANCIAL CONDITIONS OF THE ELECTRICAL UNDERTAKINGS AT THE END OF 1933 CLASSIFIED BY THEIR OBJECTS

Objects of the undertakings	Capital issued	Paid-in capital	Fixed assets	Bonds and debentures	Operating profits	Ratio of profits to paid-in capital
	Yen	Yen	Yen	Yen	Yen	%
Electrical undertakings	4,511,663,274	3,494,202,130	5,194,702,480	2,301,268,059	183,099,752	5.2
(1) Electricity supply undertakings	1,543,130,169	1,116,845,895	1,856,542,365	877,306,590	72,020,719	6.4
(2) Electric traction undertakings	669,242,890	459,171,630	720,059,640	311,646,336	9,760,442	2.1
(3) Wholesale supply undertakings	197,425,315	122,952,845	221,187,643	86,291,114	6,501,960	5.3
(4) Undertakings operating both (1) and (2)	2,094,864,900	1,788,931,760	2,388,421,401	1,024,574,019	94,523,566	5.3
(5) Undertakings operating both (2) and (3)	7,000,000	6,300,000	8,491,431	1,450,000	293,065	4.7

Note : The paid-in capital includes the capital of the undertakings other than the joint stock companies amounting to Y.828,201,949.

public supply undertakings including greater proportion of the electric traction undertakings and 69 per cent of the private plants represented purchase and resale plants.

In generating capacity, 89 per cent of the total capacity represented the public supply undertakings, leaving 11 per cent for the private plants and 62 per cent of the total capacity consisting of 68 per cent of the capacity of the public supply undertakings and 15 per cent of that of the private plants were hydro-electric, 38 per cent of the total capacity consisting of 32 per cent of the

were only 229 villages at the end of 1933, that did not fall within the limits of any supply area of electricity supply undertakings and they were all situated in the remote mountains or on the solitary islets. These saturated conditions, combined with increasing number of existing electric lights out of service, caused the rate of increase to decline in recent years. As seen from the tables 6 and 7 showing the extent of the demand for electric lighting in past ten years and the prefectural density of electric lamps installed as referred to population at the end of 1933, respectively, the total

TABLE 17.—ANNUAL COMPARISON OF THE FINANCIAL CONDITIONS

Year	Capital issued	Paid-in capital	Fixed assets	Bonds and debentures	Operating profits	Ratio of profits to paid-in capital
	Yen	Yen	Yen	Yen	Yen	%
1924	2,615,582,226	2,012,204,987	2,466,585,834	760,327,121	217,250,000	10.8
1925	2,813,921,311	2,218,649,419	2,769,096,201	1,070,879,170	252,977,000	11.4
1926	3,187,231,699	2,453,587,700	3,177,204,776	1,226,280,066	279,332,000	11.4
1927	3,524,199,354	2,677,153,198	3,667,387,212	1,506,040,348	279,541,000	10.4
1928	3,740,905,312	2,868,716,555	3,912,313,916	1,818,759,665	282,880,000	9.9
1929	3,984,816,183	3,019,221,892	4,368,880,751	2,129,870,802	301,900,000	10.0
1930	4,098,983,566	3,180,810,157	4,657,417,460	2,381,206,602	255,845,000	8.0
1931	4,143,042,950	3,234,180,585	4,755,045,621	2,471,531,720	227,062,000	7.0
1932	4,174,738,237	3,326,834,092	4,888,175,020	2,494,049,768	195,997,000	5.9
1933	4,511,663,274	3,494,202,130	5,194,702,480	2,301,268,059	183,100,000	5.2

Note : The debentures include the short term liabilities and notes payable except in 1933.

capacity of the public supply undertakings and 85 per cent of that of the private plants being thermal.

III.—Growth of Number and Generating Capacity of Electrical Undertakings

Declining as the number of the electricity supply undertakings was, the number of the electrical undertakings as a whole has been almost constant. The number of the private plants increased by 80 per cent in past decade.

Growth of generating capacity in past decade were 210 per cent, 250 percent and 230 per cent for hydro-electric power, thermal power and both hydro-electric and thermal power combined, respectively, and in past five years 120 per cent for hydro-electric power and thermal power equally.

IV.—Electric Lighting

Electricity supply for lighting has been so universal throughout the country that of over 11,600 cities, towns and villages there

number of electric lamps installed at the end of 1933 was 160 per cent of that at the end of 1924, and the average number of electric lamps installed per hundred of population was 57.

It is understood that the diffusion of electric lighting was more remarkable in the cities than in the towns and villages. As seen from table 8, the number of lamps installed in 122 cities in the country occupied 57 per cent of the total number of lamps installed and the number of lamps installed in six larger cities that represented 60 per cent of the former occupied more than 34 per cent of the latter.

Of the total number of lamps installed, about 17,990,000 or about 88 per cent of the lamps under contract tariffs represented those under the meter tariffs that have been of late increasingly adopted. As the meter tariff is not only more rational than the contract tariff, but has also no less bearing upon power economy, we have reason to expect a new aspect of rate situation at no distant date, a sign of which we would be able to read in so many cases of the companies introducing various forms of meter tariffs and improving conditions of service. As seen from table 9, the

TABLE 18.—DISTRIBUTION OF THE DIVIDENDS DECLARED AMONG VARIOUS ELECTRICAL UNDERTAKINGS AT THE END OF 1933

Objects of the Undertakings	More than 15%	More than 12%	More than 10%	More than 8%	More than 5%	Less than 5%	No dividend	Loss	Not exactly known	Total
Electrical Undertaking (joint stock companies)	1	3	32	76	123	127	175	90	46	673
(1) Electricity supply undertakings	1	1	19	60	78	92	100	35	22	408
(2) Electric traction undertakings	—	—	1	3	20	25	60	44	2	155
(3) Wholesale supply undertakings	—	1	7	6	15	8	10	3	22	72
(4) Undertakings operating both (1) and (2)	—	1	5	7	10	1	5	8	—	37
(5) Undertakings operating both (2) and (3)	—	—	—	—	—	1	—	—	—	1

TABLE 19.—ANNUAL COMPARISON OF THE PRODUCTION OF ELECTRIC GOODS, 1924-1933

Year	Electric apparatus	Incandescent lamps	Wire and cable	Total
	Yen	Yen	Yen	Yen
1924	88,765,000	18,030,000	87,736,000	194,531,000
1925	98,919,000	17,587,000	104,620,000	221,126,000
1926	105,202,000	16,106,000	113,551,000	234,859,000
1927	94,002,000	25,685,000	107,286,000	226,973,000
1928	125,395,000	26,817,000	109,742,000	261,954,000
1929	126,738,000	29,088,000	110,543,000	266,369,000
1930	106,840,000	23,216,000	73,725,000	203,781,000
1931	73,435,000	17,811,000	51,424,000	142,670,000
1932	76,310,000	15,577,000	49,281,000	141,168,000
1933	112,080,000	23,446,000	79,774,000	215,300,000

percentage of number of lamps under meter tariffs to the total number was 47 at the end of 1933, as compared with 22 for 1924.

V.—Electric Power

By far the most remarkable progress in demand was observed in the field of electric power that had been developed as power source of rural districts and home life, besides industrial electro-motive power.

As seen from table 10 showing annual demand for electric power, the number of kilowatts installed at the end of 1933 was 280 per cent of that of ten years before, showing an increase of seven times during the same period in the demand for electric heating.

The tables 11, 12 and 13 show an analysis of the demand for electric power at the end of 1933, an annual comparison of percentage of the demand for electric power under contract and meter tariffs and an analysis of the demand for electric power at the end of 1933 by various industries, respectively.

A trend in electricity supply can be observed in the fact that the demand for electric power under contract that was 25 per cent of the total demand in 1924 declined to only 7 per cent at the end of 1933. As to the distribution of electric power under contract, electro-motive power occupies 89 per cent, leaving 11 per cent for electric heating, etc., which latter, though remarkable of late, was limited when compared with the demand for electric power as a whole.

Table 14 shows annual growth of the outputs generated for the purposes of all the uses including electric lighting, the figure at the end of 1933 showing 2.5 times increase and 1.4 increase as compared with ten years before and five years before, respectively. It also increased by 35 per cent as compared with the previous year by reason of the boom on the part of manufacturing industries.

VI.—Electric Traction

One phase of modern development of transportation will be seen in the rapidly growing extension of the electric railway. The suburban and interurban cars that are so popular are driven electrically in almost every case; the time has been ripe even for electrification of the trunk lines of the government-owned railroad. Table 15 shows increases of 250 per cent in the length of railway, 180 per cent in the number of car-kilometers and 120 per cent in the number of passengers in a decade, not including government railroad electrified.

VII.—Financial

Table 16 shows the financial conditions at the end of 1933 of the electrical undertakings as classified by their objects. As

TABLE 20.—PRODUCTION OF ELECTRO-CHEMICAL INDUSTRY IN 1933

Products	Amount produced
	Yen
Calcium carbide	9,814,217
Lime nitrogen and ammonium sulphate	24,037,676
Phosphorus	1,247,444
Iron, steel and ferro-alloys	18,037,712
Copper	51,417,044
Gold	29,168,520
Silver	5,883,955
Blue vitriol	598,054
Zinc, bismuth and lead	3,103,903
Tin	3,025,517
Caustic soda	10,464,996
Bleaching powder	3,775,018
Miscellaneous	10,847,302
Total	171,421,358

seen from the table, the percentages of the capital issued by the electricity supply undertakings, the electric traction undertakings, the wholesale supply undertakings and the undertakings operating both electricity supply and electric traction were 34 per cent, 15 per cent, 4 per cent and 46 per cent, respectively. And the total sum of the bonds and debentures represented 86 per cent of the amount of the paid-in capital or 53 per cent of the value of fixed assets.

The total of the capital issued of 673 joint stock companies falling within the electrical undertakings were Y.3,680,000,000 or 82 per cent of the total capital issued. This, when compared with the total sum of Y.17,740,000,000 of 27,067 joint stock companies of all descriptions (according to the companies statistics of the Ministry of Commerce and Industry), raises the electrical companies representing only 3 per cent of all the companies in number, to the first rank with 21 per cent of the total capital issued.

Though the ratio of the operating profits to the paid-in capital amounted to 5.2 per cent as a whole, the average for the electricity supply undertakings were 6.4 per cent as compared with 5.3 per cent of the undertakings operating electricity supply and electric traction or only 2.1 per cent of the electric traction undertakings.

Tables 17 and 18 give the annual comparison of the financial conditions in the past ten years and the distribution of dividend declared of various electrical undertakings at the end of 1933.

TABLE 21.—PRODUCTION OF ELECTRO-CHEMICAL INDUSTRY, 1924-1933

Year	Amount produced	Year	Amount produced
	Yen		Yen
1924	111,947,000	1929	152,011,000
1925	118,404,000	1930	131,516,000
1926	107,415,000	1931	94,221,000
1927	130,740,000	1932	106,866,000
1928	143,383,000	1933	171,421,000

As seen from the former table, there were 170 per cent or 110 per cent increases in the amount of the capital issued in the past ten or five years; 210 per cent or 120 per cent increases in the amount of fixed assets; and 300 per cent or 110 per cent increases in the amount of bonds and debentures.

As for the ratio of operating profits to paid-in capital which had been about 10 per cent annually for many years, there was falling off in recent years. For this situation was responsible, besides business depression, repletion and retrenchment of internal organization and management on the part of the undertakings.

Of all the electrical undertakings, 53 per cent paid dividends; that is to say, 5 per cent of the undertakings paid dividends of more than 10 per cent; 29 per cent of the undertakings more than 5 per cent; 15 per cent of the undertakings less than 5 per cent; while 27 per cent and 13 per cent of the undertakings were incapable of declaring any dividends and suffered losses.

Of the undertakings that declared dividends, those operating both electricity supply and electric traction rank first with 65 per cent of the total number of the electrical undertakings, each of the individual undertakings also declaring higher dividends. Then came the electricity supply undertakings, and the wholesale supply undertakings; and the electric traction undertakings were least profitable.

VIII.—Electric Manufacturing Industry

Electric goods for domestic consumption were mostly imported at the beginning. Presently the electric manufacturing industry sprung into being and its production so rapidly increased that even large export figures were recorded as a result of the fictitious trade boom during the European war. In table 19 figures is shown for the past ten years' situation of the industry. Though there was a falling off in the amount produced during the depression years, its improvement by reason of the industrial recovery in 1933 was very pronounced.

IX.—Electro-Chemical Industry

Encouraged by the growth of industries the annual production of the electro-chemical industry increased rapidly during the European war. Though this trend was a little downward with the postbellum industrial revival of belligerent nations, excepting

TABLE 22.—GEOGRAPHICAL DISTRIBUTION OF WATER POWER RESOURCES AT THE END OF 1933

Geographical division	Water power licensed						Water power not yet licensed		Available water power	
	Developed		To be developed		Total		No. of sites ‡	Theoretical kw§	No. of sites	Theoretical kw
	No. of sites *	Theoretical kw†	No. of sites *	Theoretical kw†	No. of sites *	Theoretical kw†				
Hokkaido	53	154,672	22	90,618	75	245,290	189	427,577	264	672,867
Aomori	16	20,664	8	3,760	24	24,424	32	60,458	56	84,882
Akita	37	48,602	14	26,754	51	75,356	67	99,786	118	175,142
Yamagata	22	43,405	4	10,315	26	53,720	66	195,066	92	248,786
Iwate	31	36,467	3	19,624	34	56,091	114	187,380	148	243,471
Miyagi	26	38,008	2	3,118	28	41,126	23	30,308	51	71,434
Fukushima	71	231,320	36	446,371	107	677,691	64	268,014	171	945,705
Niigata	55	337,257	20	584,790	75	922,047	32	123,081	107	1,045,123
Nagano	98	508,303	49	347,999	147	856,302	73	270,048	220	1,126,350
Tochigi	36	107,727	7	8,987	43	116,714	13	42,045	56	158,759
Gumma	34	263,135	39	237,817	73	500,952	14	19,151	87	520,103
Ibaragi	14	15,761	6	7,544	20	23,305	1	2,869	21	26,174
Saitama	5	12,261	1	2,109	6	14,370	6	16,350	12	30,720
Tokyo	3	8,273	5	6,174	8	14,447	4	9,807	12	24,254
Chiba	4	495	—	—	4	495	—	—	4	495
Kanagawa	19	56,185	10	18,938	29	75,123	4	32,068	33	107,191
Yamanashi	55	269,022	14	34,664	69	303,686	21	86,111	90	389,797
Shizuoka	55	92,293	18	379,093	73	471,386	21	151,817	94	623,203
Aichi	22	53,325	4	14,784	26	68,109	14	21,521	40	89,630
Miye	16	8,770	5	28,130	21	36,900	22	36,252	43	73,152
Toyama	50	513,858	16	404,490	66	918,348	20	96,113	86	1,014,461
Ishikawa	21	57,694	2	5,359	23	63,053	22	67,394	45	130,447
Gifu	60	298,861	42	397,930	102	696,791	61	266,016	163	962,807
Fukui	22	47,156	5	9,703	27	56,859	15	86,452	42	143,311
Shiga	13	16,776	2	6,600	15	23,376	3	2,762	18	26,138
Kyoto	21	116,823	5	12,058	26	128,881	6	14,597	32	143,478
Nara	8	21,235	8	33,630	16	54,865	16	42,242	32	97,107
Osaka	7	1,144	2	351	9	1,495	—	—	9	1,495
Wakayama	20	21,956	3	1,391	23	23,347	12	37,002	35	60,349
Tottori	13	19,143	15	40,143	28	59,286	9	18,344	37	77,630
Shimane	13	17,026	5	22,782	18	39,808	22	44,642	40	84,450
Hyogo	21	13,194	7	7,420	28	20,614	5	7,316	33	27,930
Hiroshima	15	55,729	11	37,175	26	92,904	21	37,689	47	130,593
Okayama	12	41,366	3	6,343	15	47,709	18	38,746	33	86,455
Yamaguchi	6	23,701	1	2,016	7	25,717	4	8,414	11	34,131
Kagawa	1	378	—	—	1	378	—	—	1	378
Tokushima	16	34,012	5	28,992	21	63,004	12	28,757	33	91,761
Kochi	25	46,525	6	17,894	31	64,419	30	115,608	61	180,027
Yehime	22	34,149	1	2,049	23	36,198	9	19,268	32	55,466
Fukuoka	6	4,363	7	3,336	13	7,699	5	2,489	18	10,188
Saga	11	34,012	4	2,228	15	36,240	2	2,285	17	38,525
Nagasaki	5	1,102	3	557	8	1,659	2	710	10	2,369
Oita	30	103,595	7	22,053	37	125,648	23	25,835	60	151,483
Kumamoto	33	116,462	15	29,930	48	146,392	21	35,602	69	181,994
Miyasaki	30	138,334	10	62,367	40	200,701	36	100,666	76	301,367
Kagoshima	37	57,398	15	32,035	52	89,433	8	13,121	60	102,554
Okinawa	—	—	1	124	1	124	—	—	1	124
Total	1,190	4,141,937	468	3,460,545	1,658	7,602,482	1,162	3,191,779	2,820	10,794,261

*Sites having more than 75 kw

†Based on the number of maximum kw. licensed

‡Sites having more than 150 kw

§Based on the number of kw of the flow available six months during the year

a remarkable improvement during 1928 to 1929. The recovery from this discouraging situation, however, has been rapidly effected recently owing to good times in business and in 1933 the industry enjoyed prosperity reequaled by only that in 1915, as shown in table 20.

X. Water Power

In table 22 available water power, developed and undeveloped, classified by local division, is shown according to the results of the latest investigation. Though the figures could not be brought

on unified basis as noted below, one would not fail to get the general situation.

To enumerate the rivers inclusive of their tributaries by the order of their water power resources, the Shinano, Agano, Kiso, Tone, Tenryû and Kurobe rivers lead the rest with 1,089,269 kw, 1,024,303 kw, 858,157 kw, 592,233 kw, 515,191 kw and 427,426 kw, respectively, on the basis of the flow available six months during the year; the Fuji, Jintsû, Shô, Oi, Ishikari, Mogami Sagami, Yodo rivers, etc., following in abundance, all with more than 10,000 kw available.

Ammonia Sulphate Plant Opened

The Kanseishi (Kanchingtsu) plant of the Manchuria chemical industry company in Dairen was put to operation recently for the first time and the first output of 130 tons of sulphate of ammonia was manufactured.

The daily output will be raised to 200 tons in a few days and in the middle of this month, the daily producing capacity will be increased to the maximum of 600 tons.

The Manchuria chemical industry company was sponsored by Mr. Jotaro Yamamoto in 1928 when he was president of the S.M.R. The company was established in Dairen in May, 1933, with an

authorized capital of Y.25,000,000. The Kanseishi plant is equipped with the most up-to-date instalments and a patented method invented in Germany has been bought by it.

For the present, all stocks will be exported to Japan where a majority of the demands are met with imports from foreign countries. The management of the company proposes to ship stocks to South China and further to the South Seas in the future to compete against foreign goods. The management believes that the competition will be waged at an advantage because of cheap cost of production and the geographical facility of the plant.

Gold Production in the Philippines*

Sum of P.9,500,000 Mined During the First Four Months of 1935; the Predicted Figure of P.30,000,000 for the Year Seems Likely to be Passed

THE first four months of 1935 have been the most prosperous ones in Philippine gold mining history. More than P.9,500,000 was shipped in gold bullion and concentrates, and, with many plants increasing their milling capacity and several new mills under construction, the estimated total of P.30,000,000 for the year will probably be exceeded.

April was the best month that mining has ever seen here. Gold production more than P.2,500,000. Mining and milling conditions were good, although a few rains in the Baguio district gave an idea of difficulties to come. March was slightly under April, with but a few thousand pesos difference in bullion production.

New production records are being made each month by large and small mines alike, and the \$35 price for gold is enabling nearly every plant in the Islands to handle more ore, ore of lower grade that would not have been commercial grade at the old price.

Balatoc alone has accounted for nearly half of the gold and silver production of the Islands. In both March and April this mine passed its own million-peso-a-month production record first reached in November, 1934. During March the Balatoc mill handled 37,238 tons—an average of 1,201 tons a day. The April tonnage was 35,690, or 1,189 tons a day. No other mine in the Islands has ever come close to these figures.

The Balatoc mill capacity is being increased steadily, and the mine is in condition to supply plenty of milling ore. It is probable that the million-peso figure will be maintained throughout the year, and increased slightly.

Benguet Consolidated is keeping up a high monthly yield, although it has not reached its high record set last December so far this year. By handling low grade ore mined from the upper levels of the mine, Benguet Consolidated is increasing the life of the mine and saving further maintenance of mine openings leading to these upper levels. Between 750 and 800 tons is being milled a day, and the production averages around P.615,000.

Antamok Goldfields has made a most remarkable production record. Since last October, when its gold added up to some P.110,000, it has been increasing rapidly until it reached a peak in March of P.243,463. April saw P.225,290 shipped, and 10,920 tons milled, an average of 364 tons a day. Antamok Goldfields started to mill Gold Creek ore April 7, and some of their April bullion included that milled from Gold Creek. Antamok is working the Gold Creek property on a percentage basis.

Itogon has been increasing its mill capacity, and is approaching the 10,000 ton mark. In March it established a record of 9,823 tons, and handled 9,254 tons during April. The addition of a new coarse crushing plant, which was ready for operation by the end of May, was expected to boost their capacity. Production has been between P.175,000 in February to P.195,700 in January, P.189,400 in April, and P.185,100 in March. Itogon maintains a high extraction—around 91 per cent—and handles ore averaging close to P.11 a ton.

Demonstration, which has just finished its fourth month of operation, has become one of the outstanding properties in the

Baguio district. Starting with P.51,000 in January, it has brought its production up to P.92,555 in April. It will probably continue to produce at the rate of around P.100,000 each month. Ore reserves have been doubled during the past year at Demonstration, and the mill capacity boosted to 150 tons daily. This figure will be raised to 170 tons within a few months.

Baguio Gold is doing considerable construction work on its mill and mine, and its production has gone down to some extent, from P.92,494 in January to P.60,212 in April. With an increased mill capacity of 200 tons a day, and additional compressor power available, Baguio Gold is expected to raise its gold shipments during the next few months.

Suyoc Consolidated jumped its production by more than P.20,000 during April, by using concentrates from the stock pile and by cleaning up its pipelines. Production from ore mined was

higher than ever before—some P.68,000, making a total for the month of P.86,225. The ore treatment problem at Suyoc is complicated by the presence of nearly one per cent of copper, and this has caused the Marsman engineers no little trouble. The difficulty has apparently been solved, however, and concentrates and bullion are shipped to California for smelting and refining.

Benguet Exploration has added around P.5,000 a month to its bullion shipments, and now averages around P.25,000 a month. Development of a body of ore discovered within the past few months may lead to the construction of a cyanidation or flotation mill there instead of the present 100-ton-a-day leaching plant.

Ipo Gold shipped P.42,230 during April—its lowest production since the mill was started in February, 1934. Ore reserves are reported to be practically

exhausted on the main block, and ore is being used from the south workings. Extensive development work is going on in an attempt to replenish the ore reserves.

Gold River added a bit to the April production by its two pourings, totaling P.30,800 (estimates received from the Gold River office). The mill ran but a month, and was shut down. Development work is reported going on to determine the advisability of starting operations again.

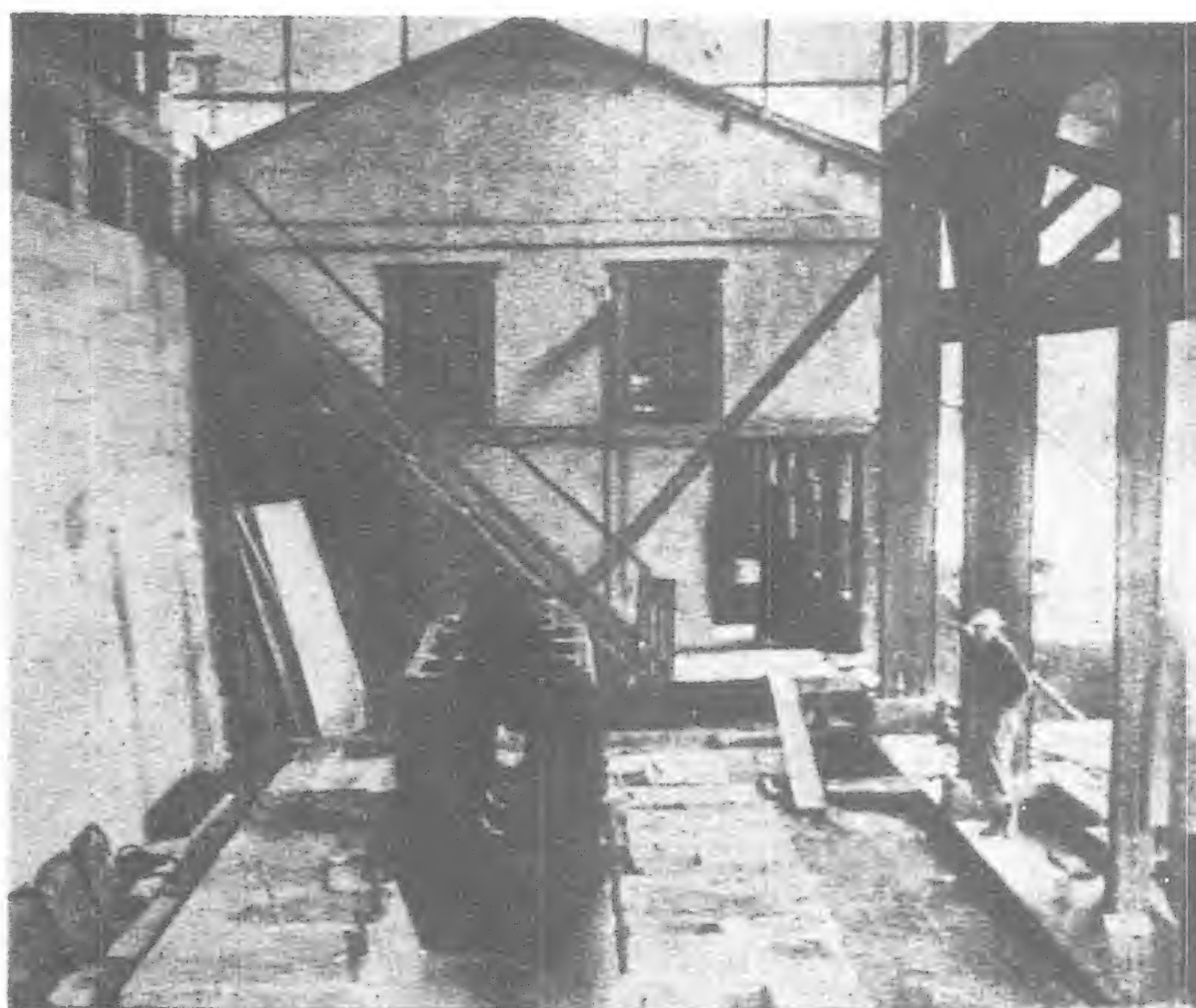
Several mines are producing in the Masbate district. Paniqui has a total of around P.200,000 through the month of April for 1935, and I.X.L. averages about P.35,000 a month. The Tinago and the Lupa Mining Companies are also reported to be shipping bullion.

MONTHLY GOLD PRODUCTION JANUARY-APRIL 1935 (ALL FIGURES BASED ON GOLD AT \$35 AN OUNCE AND SILVER AT MINT PRICE)

	January	February	March	April
Antamok Goldfields..	195,959	218,092	243,463	225,290
Baguio Gold ..	92,494	76,654	75,363	60,212
Balatoc ..	†914,465	910,494	1,053,834	1,068,136
Benguet Consolidated	639,792	599,639	614,400	615,515

(Continued on page 351)

*The American Chamber of Commerce Journal



One-half of the new Diesel engine at Baguio Gold already in place in the new Power Plant Annex waiting for its sister part

Mining Trucks in Japan*

AMONG the fields of application in which the reliability and economy secured by the use of SKF bearings are particularly striking is that constituted by the trucks used in mining, quarrying, and similar work. In the designing of these trucks one of the chief requirements to be met is that they shall be capable of withstanding rough treatment. Their loading capacity is usually taxed to the utmost, for the greater the load the fewer the journeys. And they are often liable to be subjected to heavy shocks during loading and unloading and while running. So durability, and what is perhaps still more important, reliable bearings, are the first essentials. A further requirement is that the trucks shall run easily; for the easier the running the greater the number of trucks that can be included in one train. The frictional resistance offered by the bearings must therefore be very low.

To the instances that have from time to time been given in this *Journal* to show the benefits to be derived from the use of SKF bearings for mine trucks and similar vehicles can now be added another—this time from Japan. For four years the SKF Company in that country has co-operated with a leading firm of truck manufacturers, the Tobata Foundry Co., of Tokyo, and in collaboration with them has carried on the sale of what in Japan is known as the SKF-Tobata Truck-Wheel. The result has been very gratifying, for by the middle of October, 1933, 26,794 wheel-sets, each consisting of four wheels, had been sold by the joint efforts of the two concerns. There are two SKF bearings in each wheel; so the total number of bearings used for this purpose amounted to 214,352, the sizes being chiefly 6208, 6210, 6310 and 6312.

One of the buyers, the mining company known as Mitsui Kozan K.K., Kyushu, has made thorough investigations covering a considerable period with a view to determining the cost of running their trucks on SKF-Tobata wheels. At this mine in the early part of 1933, there were in use altogether 1,459 trucks, which can be divided into three groups as follows:—

Group A.—SKF-Tobata trucks	610
„ B.—Trucks with roller bearings of old design	84
„ C.—Trucks with plain bearings	765

The result of the investigation was as follows:—

MONTHLY EXPENSES IN YEN

	Group A	Group B	Group C
Cost of material	201.91	196.76	352.17
Labor	42.40	83.26	218.99
Maintenance	10.37	30.72	204.95
	254.68	310.74	776.11

Thus the total cost per month of running all these 1,459 trucks amounted to Y.1,341.53. The figure for the plain-bearing trucks is equal to 105 sen per truck per month, while that for the SKF-Tobata trucks gives only 41.8 sen per truck per month; so the SKF-Tobata trucks were responsible for a saving of 60 per cent in running expenses alone. These users estimate that by converting all their trucks into SKF-Tobata trucks they will reap the saving shown by the particulars below:—

Running costs:	
765 trucks with plain bearings	Y. 776.11
84 trucks with roller bearings, old design	Y. 310.74
849	Y.1,086.85
Running costs with SKF-Tobata trucks:	
849 trucks at 41.8 sen	Y.354.88

Total saving per month Y.731.97

Total saving per year Y.8,783.64

It goes without saying that a saving on this scale would be welcome at the best of times. It is doubly so when the prices obtainable for the mined product are poor. This instance affords still further proof of what has often been demonstrated by figures before, namely, that to use SKF bearings is to save money.

Fig. 1 shows a mine truck fitted with SKF-Tobata wheels.

Fig. 2 shows a large number of such trucks, belonging to the Japanese mining concern, Messrs. Furukawa Kogyo K.K., Saibu Kogyosho. This company has altogether 800 trucks in use, all running on SKF-Tobata wheels.

(Continued on page 351)

*The Ball Bearing Journal

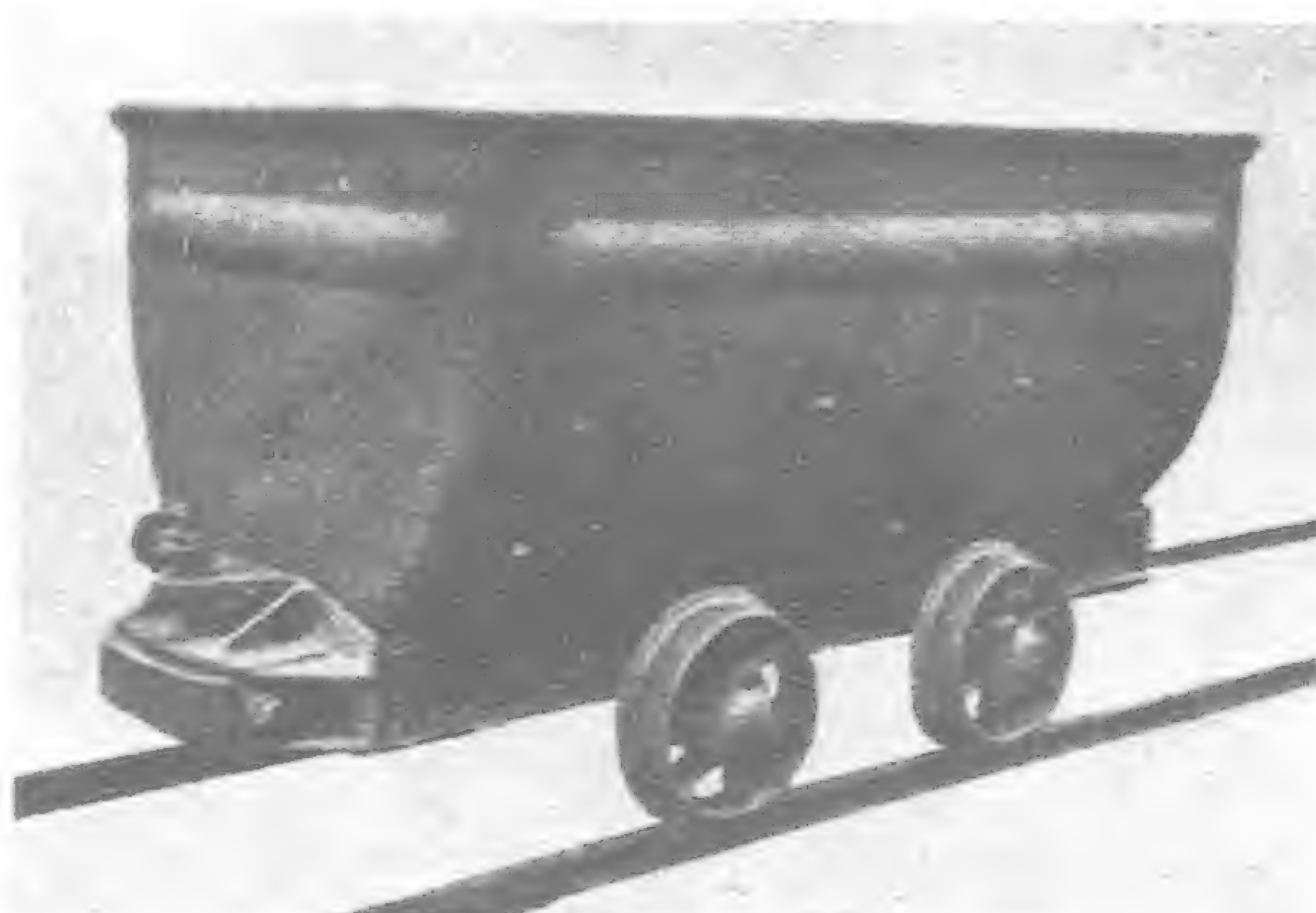


Fig. 1

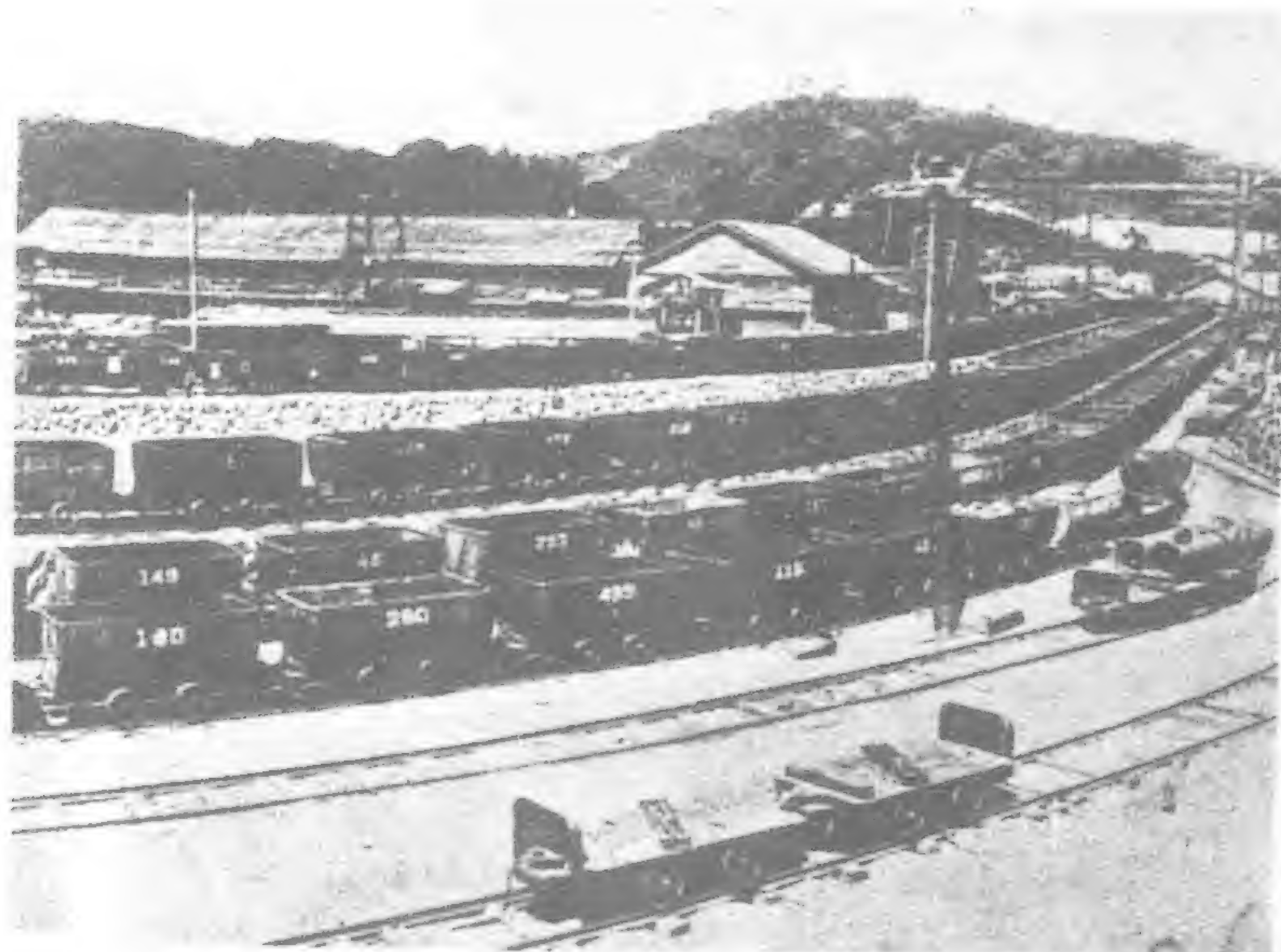


Fig. 2.



Fig. 3

BALATOC*

BALATOC is to-day the richest mine in the Far East, and one of the most profitable gold mining enterprises in the world. This is common knowledge, but few people realize that back of the success of Balatoc are many years of failure, the expenditure of millions of pesos, and constant labor and determination on the part of those who had faith in the property. Balatoc was turned down several times by prominent mining engineers, among them engineers of Benguet Consolidated. Several men, however, were convinced that Balatoc was a potential mine, among them Judge John W. Haussermann, Benguet head, Paul A. Gulick of Manila, H. C. Heald, of Baguio, and others. The public did not share the enthusiasm of these men, however, and in 1927, when Benguet Consolidated acquired a 60 per cent interest in Balatoc, shares of the company were selling for fifty centavos each—with few buyers at that! (Balatoc sold during June for P.18.75 a share—and two 100 per cent stock dividends have been declared since 1927).

The Acupan mine is supposed to have been worked by the Chinese hundreds of years ago; it is a certainty that the Igorots worked it early in the 19th century, when the Spanish authorities maintained a blockhouse and a small garrison of soldiers at the mine to protect the workers from the head hunters of the North. It is reported that at one time there were as many as 10,000 persons living at Acupan, all dependent upon mining for a living—whether or not this is true is not known, but old surface workings as well as the ruins of the old barrio indicate that there was great activity at one time. To-day a community of about 8,000 persons is housed at Acupan, the Balatoc mine site, and at the mill site a few kilometers down the valley.

Around 1902 Americans started their penetration of the Mountain Province, and locations were soon made at the site of many abandoned mines, among them Acupan. Major Harry Howland and Clinton H. Hulburt located the "Major" group of claims near what is now the main workings at Balatoc. They persuaded Major Howland's uncle, back in the States, to invest P.200,000 in the property, and immediately ordered a 60-ton mill. The ore was refractory, and after two months the project failed. Hulburt was grubstaked by a Manila man, and continued to prospect in the vicinity. As a result of his work, the Acupan Mining Company was formed, with 18 claims staked out—later increased to 31. In 1911 the company was incorporated for P.100,000, and about P.12,000 worth of stock sold to friends and acquaintances of the directors. Another mill was built, this time a plant with three stamps, two amalgam plates, an arrastre grinder, a power pipe line, Pelton wheel, and two generators. The ore reserves of the company were estimated as being worth half a million pesos.

This plant worked well mechanically, but again the nature of the ore was too much for the operators. Not more than 20 per cent of the values could be extracted, and the result of the first 30 days operation was a small gold bar worth P.1,200 while later outputs ran from P.1,000 to P.2,000 a month (to-day if Balatoc doesn't produce a million pesos a month the engineers are quite apologetic!). The World War came, and the prices of mining supplies jumped. Production dropped, and it was decided to dispose of the property.

An engineer representing an English mining syndicate took a year's option on the property, and spent P.100,000 in development work within a few months. He was recalled to London to join the colors, however, and the option was dropped. In 1917 Judge Haussermann and Delmar Smith-Clinton took an option on the Acupan claims, working them for about one year. More than a million pesos worth of ore was placed in reserve, but the ore was refractory and at the termination of the option period they gave the property up. In 1919 George Wheeler took an option, and spent another P.100,000 on the claims, but failed to exercise his option—again because of the refractory nature of the ore.

Then Mr. Gulick took over the development and promotion of the property, and brought it to the point where United States capital began to show an interest in the mine. An engineer was sent out to sample and report upon the property, but he turned it down. Finally, in 1927, the Balatoc Mining Company was organized. Benguet Consolidated reconsidered, and a contract was made with Balatoc, by which Benguet agreed to spend a sum not exceeding P.600,000 for a 60 per cent interest in the Balatoc property, and to spend such additional sums as were necessary to bring the mine into production.

An extensive development program was started, and the ore blocked out warranted the erection of a mill in 1928. Ore was first started through the plant in January, 1929, at the rate of less than 100 tons a day. At the beginning of 1929 about 100,000 tons of ore were in sight. Work was started on vein 231, a rich formation lying almost vertical and close to the face of Acupan mountain; the Bar Lode, some 1,390 feet back of vein 231, was another high-grade section.

The ore was transported from the mine to the mill by a tramway, 4,860 feet long, over the top of the Acupan hill. It was crushed as it came out of the mine, and conveyed in buckets, each holding 18 cubic feet of material, or about 1,000 pounds. Eighteen of these buckets were in use, eight on a side (eight going in each direction with two extra for special loads). Four towers support the tramway, three located at strategic points between the mine and the top of the peak near the mine, and the fourth, the "breakover tower," which supports the load when the buckets are on the last state of the last lap to the mill 500 feet below, was made of extra heavy material and strongly braced. This system was in use until 1934, when ore was dropped in the mine to the drain tunnel at the 1,700 level, and hauled directly to the mill through the drain tunnel, which opens across the river from the mill.

By the end of 1930 the tonnage was averaging 165 a month. Some 30 cars of highgrade ore, averaging \$1,000 a ton, were mined and milled from the Bar Lode at the 1,200 level. Early in 1931 a sample of Balatoc ore worth P.80,000 was sent to the Colonial Exposition at Paris, as a part of the Bureau of Science exhibit.

Balatoc didn't rank high among the list of world mines for 1930, while Benguet was given sixth place by the *Engineering and Mining Journal*, of New York. In January, 1931, however, plans for a larger capacity were discussed, and it was announced

*The American Chamber of Commerce Journal.



It took a vast expenditure and many years of struggle for this mine to attain its present high rank among the World's Great Gold Mines

that the plant would be raised from 175 to 350 tons a day, at a cost of P.225,000, thus making it as large as that of Benguet Consolidated. In March, 1932, the doubled capacity was attained.

For 1931 Balatoc ranked number 55 among the world's mines, with a total of 68,085 ounces of gold produced from 56,676 tons of ore. Balatoc was ranked third among the rich mines for treating high mill heads, recovering 1.19 ounces of gold from each ton of ore treated.

At the end of 1932 another increase in capacity was announced, from 350 to 450 tons a day, and, after the drain tunnel was completed, the mine was to produce 600 tons a day. The annual report for 1932 showed that the ore reserves of Balatoc were 524,496 tons of positive, probable, and prospective ore, averaging P.29.52 a ton, valued at P.15,479,389.

In April, 1933, plans for increasing the capacity to 600 tons were made. The drain tunnel was 5,400 feet from the portal, and within 100 feet of the place where the 231 vein was to be cut. During the driving of this drain tunnel, some 300,000 tons of ore averaging around \$30 were found in a branch leading off the main tunnel. The ore reserves as of June 30, 1933, were 576,358 tons, averaging P.29.04, valued at P.16,741,844. The mill reached a capacity of 450 tons late in October, 1933, and by December was averaging 515 tons a day actually milled.

Balatoc was named the second richest gold mine of its size in the world for 1933, and the best for dividends paid per capita. During 1934 its tonnage was increased from 515 to 995, and during the past few months it has jumped to its present capacity of over 1,200 tons milled a day. Balatoc was the richest gold mine of its size in the world for 1934, and ranked well up among the leading producers of gold, regardless of size.

The company started paying dividends in 1929, and since the first dividend, of P.50,000, the total paid to stockholders, including the first half of 1935, has been P.14,700,000 in cash dividends, plus a stock dividend of 100 per cent in May, 1933, and a similar stock dividend in March, 1935, increasing the capital stock to P.4,000,000. The following table, showing production and dividends of the company, indicates the steady growth in both since Benguet Consolidated took it over:

	Production Tons	Value	Dividends Per Share	Total
1929 ..	41,514	P.2,354,941.23	P. .05	P. 50,000
1930 ..	52,587	2,521,792.80	.80	800,000
1931 ..	57,675	2,814,670.42	1.35	1,350,000
1932 ..	109,193	4,181,711.28	2.00	2,000,000
1933 ..	148,732	6,844,939.16	2.00	3,600,000
1934 ..	245,128	9,405,363.32	2.00	4,000,000
1935 ..	211,890	5,990,325.00	1.10	2,900,000

(Figures for first six months of 1935).

During 1934 Balatoc paid P.1,162,902.68 for labor; P.579,932.92 for taxes; P.1,003,842.97 for supplies, besides thousands for schools, hospitals, insurance, and all the incidental expenses necessary for the carrying on of a big business. More than 8,000 people are directly dependent upon Balatoc alone for their livelihood, while the mine, with the others in the Islands, spends millions yearly indirectly—money that goes into almost every other industry here.

Gold Production in the Philippines

(Continued from page 348)

	January	February	March	April
Benguet Exploration	21,500	23,750	28,478	26,864
Demonstration ..	51,391	45,252	72,800	92,555
Ipo Gold	66,589	46,104	44,807	42,230
Itogon	195,706	175,373	185,117	189,400
Suyoc Consolidated..	62,555	58,662	63,523	86,225
Gold River				30,800
Paniqui	51,702	47,927	50,962	*50,000
I. X. L.			37,000	31,000
Totals	P.2,292,153	2,201,947	2,469,747	2,518,227

*Estimated

Mining Trucks in Japan

(Continued from page 349)

In Fig. 3 are seen 630 mine trucks fitted with these wheels and belonging to Messrs. Kyushu Tanko Kisen K.K., Sakito Kogyosho. The loading capacity of the trucks is three tons, and the bearings used are of the size 6312. The light-colored trucks that can be seen in the illustration are galvanized, a proceeding that renders them rather out of the ordinary.

Diesel Traction Developments in Manchoukuo

(Continued from page 341)

engine is not running, are worked from a 130-volt 280 amp. hr. battery, which also supplies the current for starting the engine. A modified form of Lemp control is fitted to these trains, which will have a top speed in excess of 60 m.p.h. The weight in working order but without passengers is approximately 110 tons, equivalent to 870 lb. per seat, and 4.55 b.h.p. per ton. Considerable economy in train operation is expected from the adoption of these trains, for the three diesel railcars now in service (two of them hauling a trailer) have an operating cost (exclusive of maintenance) of Y.14.91 per 100 train-km. (28s. per 100 train-miles) compared with Y.22.98 per 100 train-km. (43s. 3d. per 100 train-miles) of the previous steam trains, which were hauled by 0-8-0 reciprocating steam locomotives.

Taken over a period of 12 months, the cost of fuel, lubricating oil, grease, waste and sundries for the four diesel locomotives while operating in shunting and local goods service amounted to Y.11.98 per 100 km. (21s. 9d. per 100 miles at the present rate of Y.17 to the £). The operating costs, including wages and maintenance, but excluding heavy overhauls, was about half the corresponding figure for steam engines. The cost of fuel was Y.49 (57s. 6d. at the present rate of exchange) per ton.

Industry in Korea

Many enterprises started in Korea during the last few years are being extended, and several new industries are being introduced. Among the latter we find the following:—An explosive factory for the Chosen Nitrogen Company, which is expanding productive equipment to 500,000 tons a year. A factory in Seoul for the Toyo Spinning Company which has built a new factory at Chemulpo with 32,000 spindles and 1,280 looms. Factories in Koshi, Seoul, and Heijo to be built for the Kanegafuchi Spinning Company.

A factory in Fusan for the Taikoku Hemp Manufacturing Company. A new plant at Komosan for the Onoda Cement Company. This concern has just finished expanding its factory at Sennairi. A mill at Sharjin for the Manchu Flour Mill Company.

Plans have been drafted to form the Chosen Oil Co., Ltd., with a capital of Y.10,000,000. According to the promoters in Japan, a refinery with a capacity of 150,000 kilolitres is to be built at Genzan, and crude oil will be imported directly. If sanction is given, the concern is expected to start operations within a year. Japan Oil is said to be interested.

The following recent works are noted:—

Construction going on with the Choshinko Hydro-Electric Power Company founded in 1933 with a capitalization of Y.20,000,000, to generate 310,000 kw. Chosen Synthetic Oil Company founded in 1934 in Seishin, to manufacture solidified oil with herrings as material. Chosen Beer Brewery Company, founded last year in Eitoho with a capital of Y.6,000,000. Showa Kirin Beer Brewery, founded in 1934 in Eitoho with a capital of Y.3,000,000. Chosen Spinning and Weaving Company, expanding its business to include dyeing. The Keijo Spinning and Weaving Company to do the same. Showa Industry Company, founded last year in Eitoho for rayon textile dyeing. Japan Magnesium Metal Company, founded in 1934, to have an annual capacity of 2,000 tons. Chosen Mining Development, founded in 1933 erected a refining factory at Konan. Chosen Gold Mining and Refining Company, founded in 1934, operates near Gunsan, North Korea Synthetic Oil Manufacturing Company, founded in 1933 in Seishin. The Enamelled Ware Manufacturing Company constructed three factories in Fusan last year.

New Kinta District Water Supply Filtration Plant*

By F. G. COALES, M.Inst.C.E., M.I.Struct.E. and J. A. T. HORSLEY, B.E.

THIS paper has been prepared with the twofold reason of giving a general description of the Filtration Plant of the Kinta District Water Supply and also, to amplify the paper on this subject, which was presented to the Association by Mr. G. Walker, Assoc. M.Inst.C.E., in 1929 (*vide* Vol. VII of the *Transactions*) by recording the information obtained and the experience gained as a result of four years operation of the plant. Reference is, therefore, invited to Mr. Walker's paper, for while necessarily a certain amount of the information already given by Mr. Walker is repeated, the authors have, as far as possible, abstained from quoting at length from that paper which is readily accessible for reference.

The plant is the largest installation of mechanical pressure filters in Malaya, being capable of dealing with 6,000,000 gallons of water per diem, at a filtration rate of 100 gallons of water per hour per square foot of sand. Provision for an extension of the plant is made, which will increase its capacity to 6,840,000 gallons per diem and, by increasing the rate of filtration to 120 gallons per square foot of sand per hour, the capacity could be raised to 8,000,000 gallons per diem. This higher rate is not, however, recommended for tropical waters, although it is not improbable that with the system of pre-sedimentation as employed on the Kinta supply it could be used safely, at any rate as a temporary measure, if an emergency arose. The plant installed consists of 49 of 8-ft. diameter Bells mechanical wash arm type pressure filters, divided up into seven batteries of seven filters each. Each battery is equipped with pumps for adding the coagulant, sulphate of alumina being used for this purpose, and a rate of flow venturi is provided to each battery so that the quantity of water can be distributed equally between the batteries. Space and connections have been provided in the Filter House for the addition of one more battery of seven filters when the consumption of water renders the present plant too small; it will be possible to add the extension with no interruption to the supply. The Plant, together with all accessories excepting the chlorinating gear, was supplied and erected completed by Messrs. Bell Bros., Manchester and has been in continuous operation since March, 1930.

In order that the general method employed may be followed a brief description of the treatment given to the raw water, from the time it leaves the Kinta River until it is delivered to the Service Reservoirs for distribution to consumers, is now given; this will be followed by a more detailed description of each stage of the treatment (Reference diagram 1).

The raw water is taken from the Kinta River at a spill weir and flows into the Sedimentation Tank, which is situated two miles 47 chains from the Filter House and 168 feet above it, thus the static head on the Filtration Plant is 72 lb. per sq. inch. The water is taken straight from the river, there being no impounding reservoir, by a 30-in. diameter cast iron main to the Sedimentation Tank of 1,700,000 gallons capacity, which is six hours supply when the plant is at maximum delivery. The water, before entering this tank, is given a dose of sulphate of alumina with the object of assisting the deposit of the solids, etc., which the raw water contains, this is known as pre-sedimentation and its object is to decrease the work which the filters are called upon later on to perform.

A 24-in. diameter cast iron main takes the raw water after sedimentation from the tank to the Filter House. Before passing through the filters the raw water may, or may not, be given a second dose of alumina, depending on the conditions which vary at different times of the year and with different volumes of water in the Kinta River. The raw water is distributed, equally, between the 49 filters, which work in parallel, that is raw water only passes through one filter and each filter takes its share of the total volume of raw water passing. After passing through the filters the pH value of the filtrate is adjusted to between 8.0 and 8.5 by the addition of lime in the form of limewater, it is then given a dose of chlorine, this completes the treatment and the filtered and chlorinated water leaves by a 24-in. diameter cast iron main to the service reservoirs for distribution to the consumers in Kinta District. The filtered

and chlorinated water normally has a color value of about two to four on the Bergers scale (0 being distilled water) and about 66 per cent of the samples will be negative to the B. Coli test in quantities of 100 ccs, while normally 87 per cent of the samples will be negative to this test in quantities of 25 ccs.

Having completed the general description of the process it is now proposed to follow the water, in detail, as it passes from the Kinta River to the consumers (Reference diagrams 1, 2 and 3).

INTAKE.—An intake dam of mass concrete has been constructed across the Kinta River and the raw water is drawn off through a 30 inch diameter cast iron main. The dam is designed to pass safely the maximum recorded flood discharge of the river, which is approx. 3,500 cusecs, and is provided with scour valves to enable the inevitable deposit of silt, which forms above the dam, to be passed through it. These scour valves are opened, as may be found necessary to keep the intake free from silt.

SEDIMENTATION TANK.—The water is discharged from the cast iron main into a concrete flume and here receives its first dose of sulphate of alumina. The alumina can be added automatically by a device, which varies the quantity of alumina solution according to the rate of flow in the concrete flume, or by a hand adjustment. The solution of alumina is made of standard strengths, each containing a known number of grains, and for any given rate of flow of the raw water the ball valve can be adjusted to add the required number of grains per gallon. Once the number of grains per gallon is decided on—in the case of Kinta it is one grain (per gallon), the constant head feed tank, by means of a float and needle valve, keeps this amount constant for varying rates of flow. The usual dose of one grain per gallon brings the pH of the raw water down to between 6.3 to 6.5 a pH value which has been found, by experience, to give the most economical floc; that is a sufficient formation of alumina hydrate to precipitate out of the raw water most of the color and suspended matter. This must not be confused with the optimum floc value of the pH which is probably nearer 5.5, but the expense of sulphate of alumina requires that the least possible be used and that naturally, is the quantity which causes a sufficient floc to form, hence the term the most economic floc value.

The sulphate of alumina solution is stored in concrete tanks placed in a small building erected for the purpose and flows into the raw water by gravity.

The water with its dose of alumina flows into the sedimentation tank and passes through this tank, which has an "A" type baffle in it, in six hours leaving behind, as a deposit, most of the suspended solids and some of the color, and thence by a 24 inch main to the filter house. The sedimentation tank has to be washed out and cleaned periodically, how often depends upon the condition of the Kinta River; during the operation this tank can be bypassed, or as is more usual, the supply to consumers is kept up by drawing on the filtered water stored in the service reservoirs.

FILTER HOUSE.—The raw water on entering the filter house passes through the main venturi meter, which was supplied by Messrs. George Kent Ltd., the recording apparatus is one of their standard A/M type and, in addition to providing a counter gear, automatically records on a diagram the rate of flow and the pressure. All the water entering the filter house passes through this meter and it, therefore, records the total quantity which passes into the filter house and thus includes all the water utilized in the filter house itself for wash water and other purpose; from its records the quantity of the water which goes to the consumers, as compared with the total quantity arriving at the filter house, can be determined and the water consumed by the filter house, which from a supply point of view is water lost, can be checked and is a measure of the efficiency of the plant.

The raw water then passes through a chemical adding venturi tube to enable, if necessary, the addition of an alkali prior to filtration. The principle of the venturi is used for adding chemicals as it provides a ready method of proportioning the quantity of

*Quarterly Journal of the Engineering Association of Malaya.

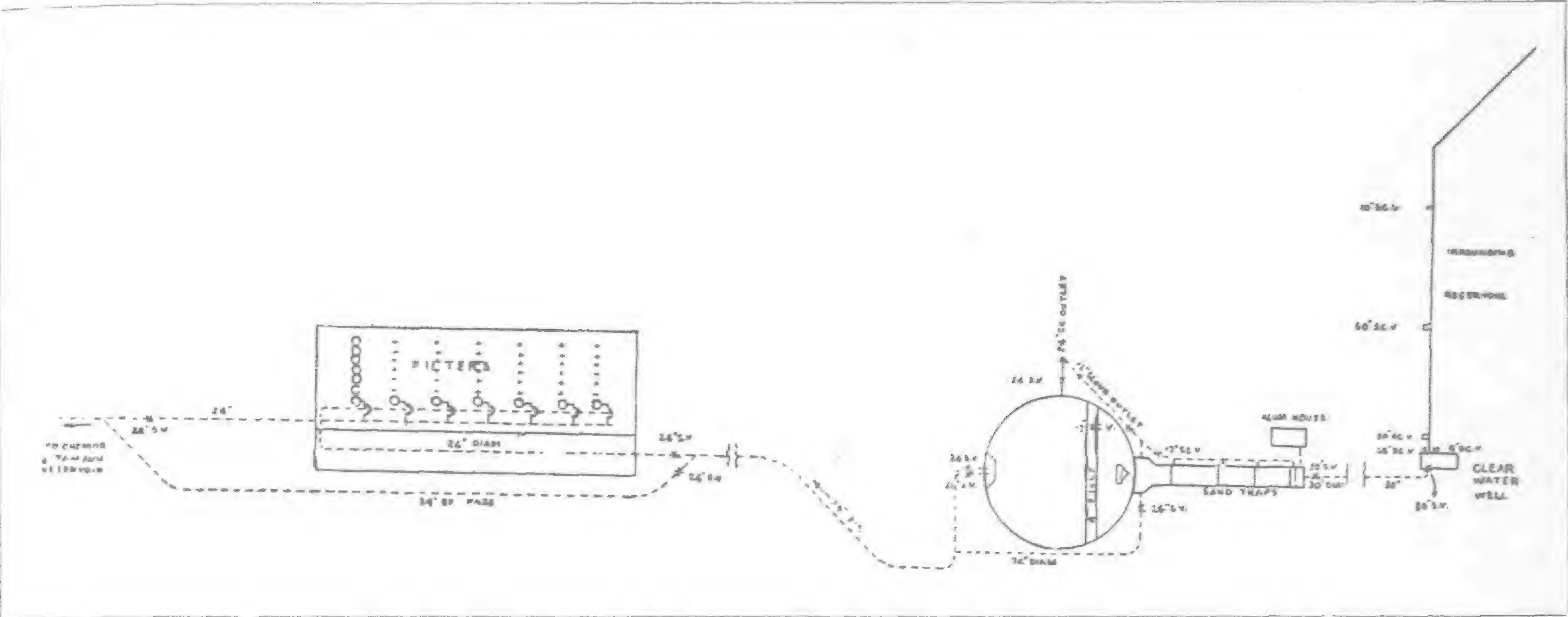


Diagram 1.—Sketch of Head Works Layout New Kinta District Water Supply

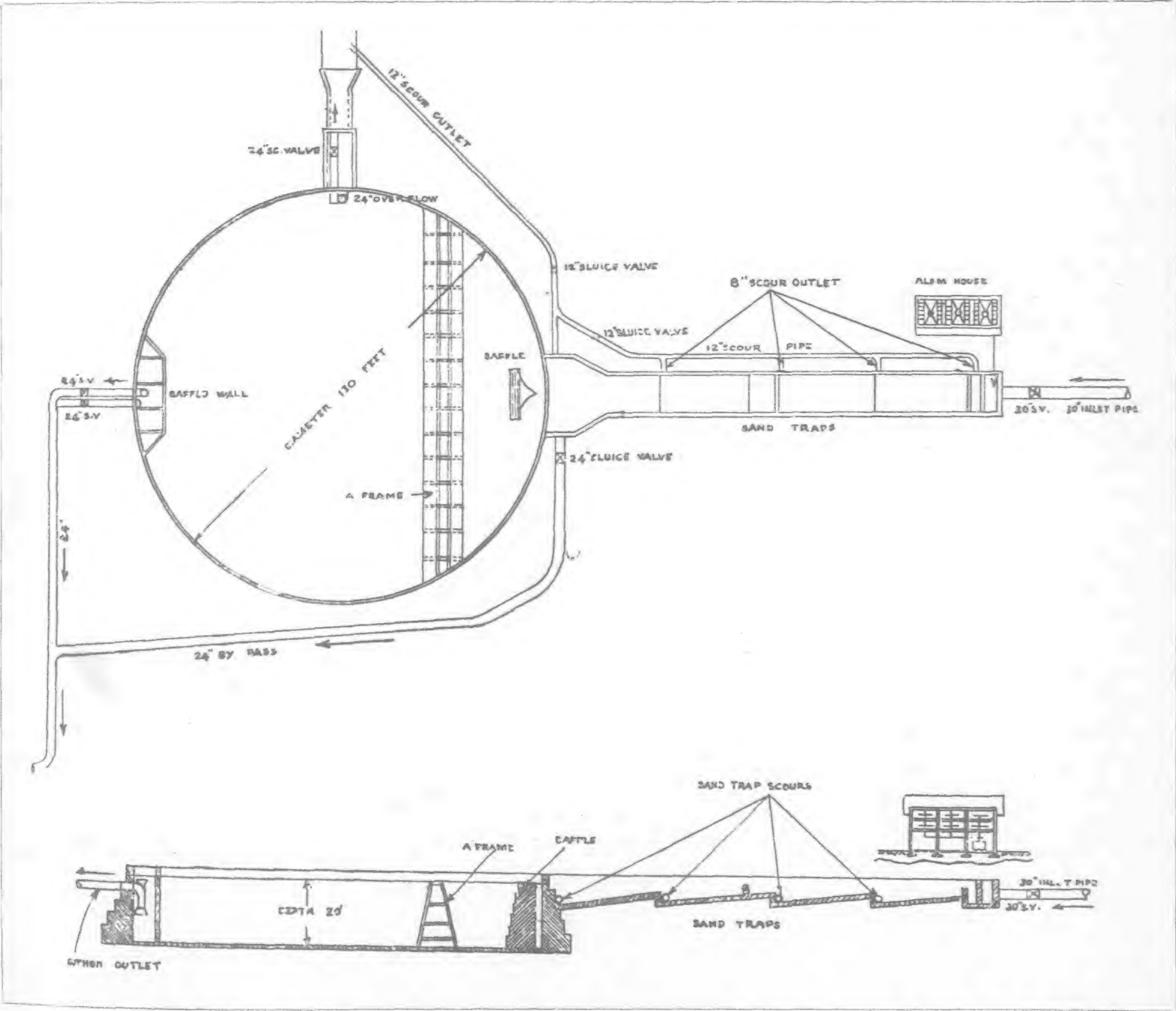


Diagram 2.—Sketch of Sedimentation Tank Layout New Kinta District Water Supply

the chemical to the rate of flow in the main. The difference in pressure in the main and in the throat being proportional to the rate of flow, the difference increasing as the discharge of the main increases. Arrangements are made for the addition of chalk in the Kinta plant, but for three years now the use of an alkali prior to filtration has been abandoned; for although the pH of the raw water is of the order of 6.7 to 6.8, that is, on the acid side of neutrality, yet there is enough alkalinity in the water for the sulphate of alumina to react on and form the alumina hydrate which composes the "floc" a sticky insoluble matter that is retained on the sand of the filter bed and forms the real filtering film. In the authors' experience of many plants it can be stated that if the pH value of the raw water does not fall below 6.5 then, as far as Malaya is concerned, it is probable that no addition of an alkali prior to filtration, is necessary. It is most advantageous if this treatment can be omitted, as it adds considerably to the many problems arising when dealing with waters containing vegetable stains.

After passing through the venturi tube the raw water is divided up between the seven batteries, each of which is fed by a 5-in. diameter pipe, off a 12-in. dia. branch, off the raw water main on which a rate of flow venturi is fixed, and by its means the control valves are adjusted, so that the total volume of water to be filtered is equally divided between the filter batteries. It will be convenient here to consider one battery, for all are similar, and it will simplify the explanation to do so. Each battery consists of seven of 8-ft. dia. filters and the water, after passing the rate of flow venturi, is led up to the top of the shells by a divided 12-in. dia. pipe. On one arm of this raw water inlet main is fixed a turbine, which drives a small pump for injecting alumina sulphate in the form of a standard strength solution. The pump is driven by the turbine and the rate of flow of the water determines the speed at which the turbine revolves, hence the pump speed is governed by the rate of flow passing and a constant dosage per gallon is given. A device is fitted whereby the length of stroke of the pump may be varied, thus enabling small changes in the quantity of the alumina solution to be made and so alter, within limits, the number of grains per gallon of alumina given to the raw water. For large alterations of dose a change of strength of the standard solution is made. The raw water enters the filter at the top and passing through a layer of three feet of sand graded 20/30, 30/40, is collected by 144 strainers, set in concrete at the base of the filter, and finally, drawn off and delivered to the filtered water main by a 12-in. cast iron pipe. The sand collects the alumina hydrate floc, which is a sticky jellylike substance and forms a filtering film on the sand bed; this film collects and takes out of the water all the suspended matter, most of the color and a high percentage of the bacteria. In order that the attendant may see the result of filtration, water from the outlet main from each battery is led to what are called clarity bowls, these are glass jars fixed on a white enamel table and, by comparison with the raw water, the result of the work of each battery can be seen and judged by the brightness and color of the filtrate.

Since the filters collect matter from the raw water there comes a time when they must be cleaned, and the method of washing is an

important part of the design of a pressure filter. The main essentials are that filtered water must be employed, that the time taken for the operation must not be too long, since this will reduce the total output of the plant, and the quantity of filtered water required shall be small, since this costs money and also reduces the total output. As this paper is descriptive of the Kinta plant, the authors have no intention of embarking on the controversial question of the best method of washing a mechanical filter, and will describe the method used in the Bells mechanical wash arm type filter which is the type installed. Reference to the diagram (Fig. 4), will assist in following the description of the procedure used in washing the Kinta filters. The washing of one battery only will be described as the procedure is the same for all batteries. The battery to be washed is first isolated from the 24-in. filtered water main, by closing the 12-in. outlet filtered water collector valve. This gives a detached unit of seven shells of which each shell, in turn, is to be washed with filtered water from the remaining six.

The shell to be washed, has its raw water inlet valve closed, then the wash water discharge valve is slowly opened until it discharges 22,500 gallons per hour, or 1 cusec, which is the supply of water required to wash each shell, and the filtered water from the other six shells is forced upwards through this shell, and out by the wash water discharge to waste through a venturi flume, where it is measured.

As soon as the reverse flow is established and the filtering sand is in suspension, the wash arms are rotated, the power for this being supplied by a 10 h.p. Crossley kerosene oil engine.

A further supply of filtered water is then led to the wash arms, which are fed by the hollow shaft to which they are attached and this water, issuing in the form of jets, assists the washing and churning up of the sand. The operation continues until the wash water comes out clean and takes from 10 to 15 minutes, depending on the condition of the sand. As soon as the wash water is clean the supply of water to the wash arm shaft is cut off and the wash arms stopped, the wash water valve is closed, the raw water valve opened and the filter is back in operation again, and begins to assist in washing the next shell. A similar procedure

is carried on until the seven shells have been washed. As soon as the whole battery is cleaned, alum is injected by the alum pumps in the filter house and the filtrate from the battery is run to waste for from 5 to 10 minutes, to ensure the new film in each shell is in working order before the battery is reconnected to the filtered water main. The wash water is discharged to waste through a flume venturi, which has a rate of flow and integrating device, enabling the quantity of wash water used to be calculated. The percentage wash water used by the Kinta plant is about one per cent to two per cent of the total water entering the filter house. The standing regulations for washing being, after a loss of head across the filters of 15 lb. sq. inch, or after 72 hours running whichever time is shorter. The average life of battery between washings is 70 hours.

LIME TO CORRECT THE PH VALUE OF THE FILTRATE.—The pH of the water after filtration is about 6.3—6.5, that is on the acid side of neutrality (7). A pH as low as this is objectionable, partly due to the fact that an acid water will attack mains and service pipes and partly, because a water of this degree of acidity,

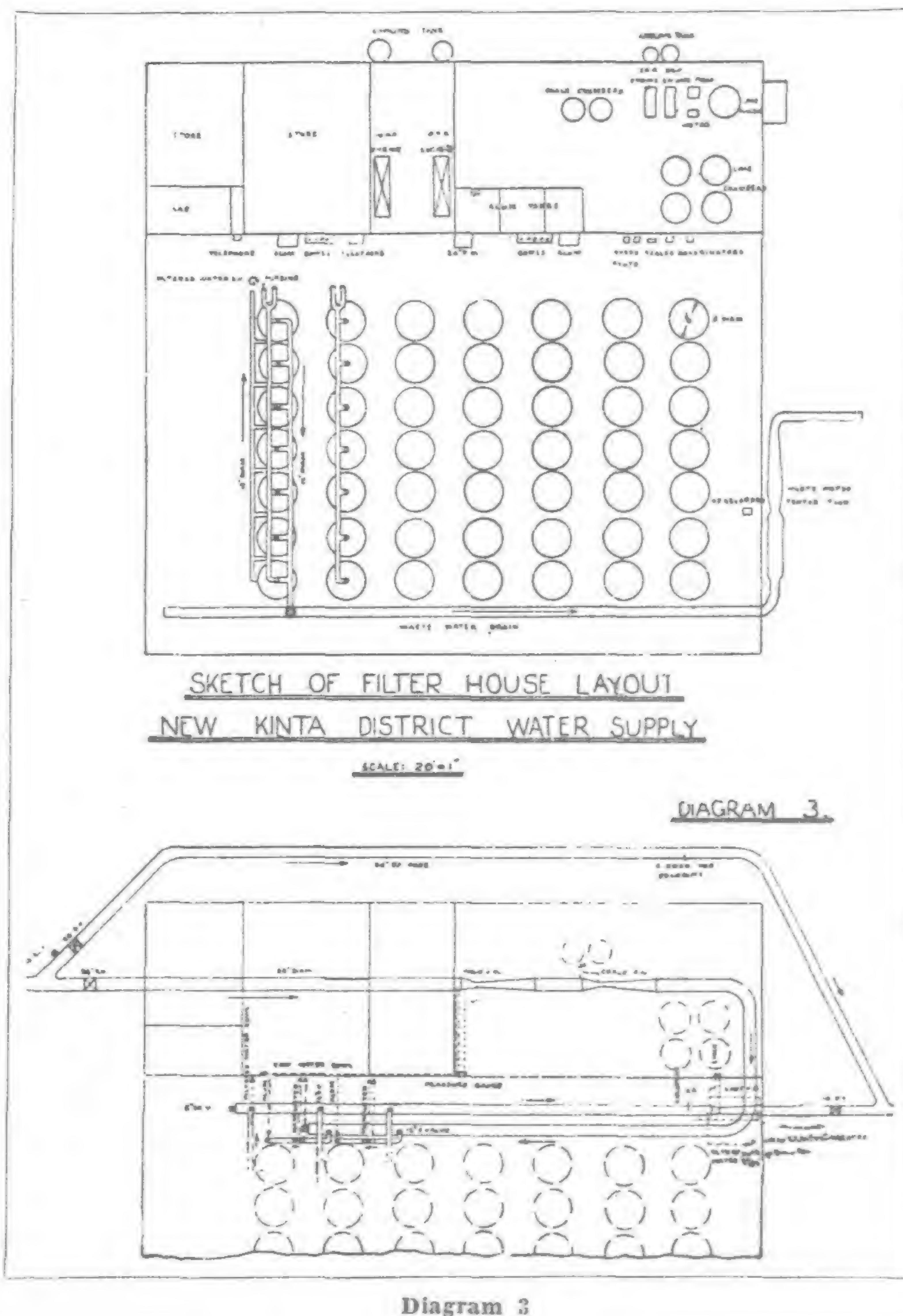


Diagram 3

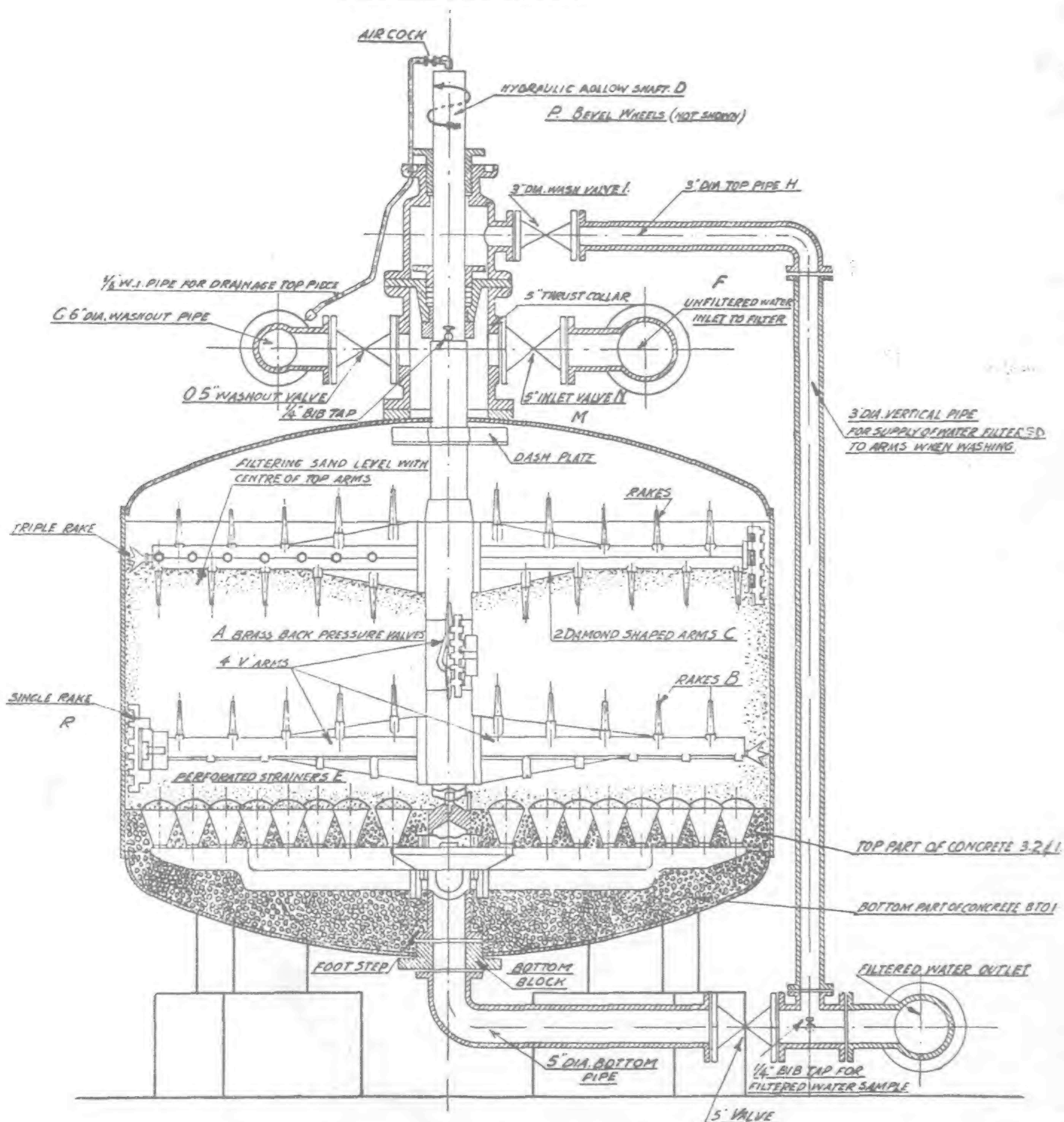
encourages the growths of the Iron Bacteria such as *Crenothrix*. It is, therefore, desirable to raise the pH to the alkaline side of neutrality, which can be done by the addition of lime (CaO) in the form of lime water. The method used is by means of a venturi tube, the upstream and throat being connected to a chamber containing lime water; the difference in pressure between the upstream and throat cause a flow of water through the chamber, and thus, the requisite quantity of lime is picked up in the form of a saturated solution of lime water. Now lime water contains 70 grains of CaO per gallon, and thus, the quantity of lime added can

be adjusted by measuring the number of gallons of solution flowing into the venturi throat. The pH value of the water, after adding lime, is taken and the flow of the lime water is adjusted until the pH is raised to 8—8.5.

CHLORINATION.—After filtration and the addition of lime the next stage is to sterilize the water, for which chlorine is used. In the Kinta plant the solution feed method of chlorination is employed, chlorine being obtained in the gaseous form in cylinders containing about 65 lb. of chlorine gas. Advantage is taken of the affinity for water which chlorine gas has, and by mixing the required

BELL BROS. (MANCHESTER) LTD

DIAGRAM 4



SECTIONAL END ELEVATION

quantity of gas with a small quantity of water, the gas is introduced into the main in solution with water; the measurement of the gas, and mixing it with water, is done by chlorinators supplied by Messrs. Wallace and Tiernan. Two types of chlorinators are used, the M.S. Pulsating Solution feed type for quantities of chlorine up to 10 lb. of gas, the M.S. Vacuum solution feed type for larger quantities. The feed water is drawn from the filtered water main and the solution is injected into the filtered water main by a pump driven by a 3 h.p. Crossley kerosene oil engine, or by a Hydrostat, the latter being worked by motive water drawn from the raw water main. As a paper is to be presented to the Perak section on "Chlorination of water" the authors do not propose to go into further details of this part of the treatment; the method employed has been briefly described and for further information reference to the paper is invited. The chlorine dosage given is about .4 parts per million gallons, i.e., 4 lb. of chlorine is injected into each million gallons of water passing through the main. The dosage varies for different waters, depending on many factors, and that adopted for Kinta has been reached after many experiments, and in collaboration with the Health Officer and Bacteriologist, using the bacteriological analysis of the water as a criterion. The filtered water then leaves the filter house in a 24-in. main and goes out to the consumers, as a potable water with a high standard of purity, comparable with the best standards obtained from municipal supplies in England. As an appendix

to this paper will be found typical analyses of the raw water, as it is taken from the Kinta River, and of the final filtrate, as it leaves the filter house. The most important criterion of purity from bacteriological contamination being the absence of organisms forming acid and gas in the lactose bile-salt medium; and the standard adopted here is that these organisms shall be absent in 25 ccs. of the water. In 1933 the analysis of the raw and filtered waters gave the following table of percentages of the times in which the presence of such organisms was detected in the raw water and in the filtered and chlorinated water.

	100ccs	25ccs	10ccs	1cc	1cc	No of samples
Raw water	100%	100%	100%	100%	97%	61
Filtered and Chlorinated water ..	34%	13%	3%	0%	0%	61

While in appendices A and B attached will be found the results of the chemical and bacteriological tests of typical samples of the raw and filtered waters. In conclusion the authors record their thanks to the Government of Perak and the State Engineer, for permission to use official documents and records, without which the compilation of this paper could not have been undertaken.

APPENDIX A.
RESULTS OF THE CHEMICAL EXAMINATION OF NEW KINTA WATER SUPPLY
Parts per 100,000 (unless otherwise stated)

Description of the sample	Color m.m. brown 2 ft. tube Burgess's Tintometer	Turbidity	Re-action pH.	Ammoniacal Nitrogen	Albuminoid Nitrogen	Oxidized Nitrogen	Oxygen absorbed from acid permanganate in 3 hours at 26.6°C.	Chlorides expressed as Chlorine	Total solids	Nitrates	Total hardness	Iron expressed as Fe.	Remarks
11877. Raw water intake, T. Rambutan	28	Clear	6.8	.0000	.0088	—	.275	.06	—	Nil	—	.012	
11878. Unfiltered water from Filter House, T. Rambutan	24	Clear	6.3	.0000	.0080	—	.282	.07	—	Nil	—	.012	
11879. Filtered water from Filter House, T. Rambutan	2	Clear	6.0	.0000	.0016	—	.048	.05	—	Nil	—	.001	
11880. Filt. and Chlor. water from tap 125-ft. below filter House, T. Rambutan	2	Clear	8.5	.0000	.0012	—	.040	.09	—	Nil	—	.001	

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Chief Chemist,
Institute for Medical Research, F.M.S.
Kuala Lumpur, April 18, 1934.

APPENDIX B.
BACTERIOLOGICAL EXAMINATION OF WATER. REPORT OF FIRST 24 HOURS
New Kinta Water Supply

Serial No.	Date and Source	100cc	25cc	10cc	5cc	1cc	0.1cc	Average number of microbes per cc. Agar	REMARKS
W 241	17.4.34 Raw water			+		+	+	1300	No. 145/34. At Intake taken at 9 a.m.
W 242	17.4.34 Unfiltered wter		+	+	+	+		125	No. 146/34. From filter house taken at 9.15 a.m.
W 243	17.4.34 Filtered water	+	+	0	0	0		9	No. 147/34. From filter house taken at 9.25 a.m.
W 244	17.4.34 Filtered and Chlorinated water	+	0	0	0	0		3	No. 148/34. From tap 125-ft. below filter house taken at 9.35 a.m.

† = Indol positive

Petter Atomic Diesel Engines Drive Chain Ferry in Harbor at Penang

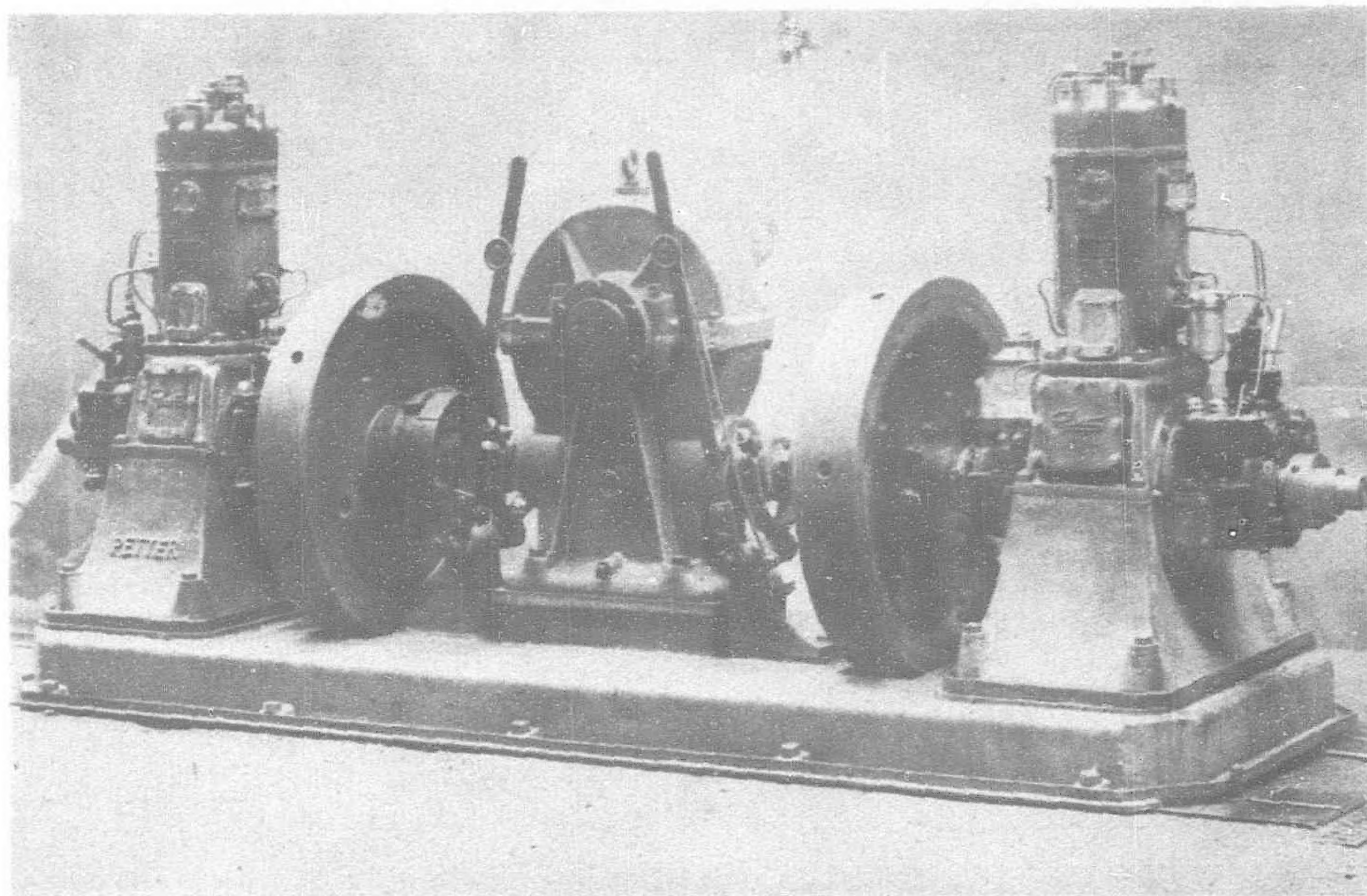
AN interesting application of the small Diesel engine is shown on this page and comprise two 15 b.h.p. single cylinder, Petter Atomic Diesel engines, running at 625 r.p.m. These are arranged for driving a chain ferry boat for the Penang Harbor Board which is used for the conveyance of motor-cars and passengers. The ferry itself, complete with machinery, and when fully laden, weighs approximately 62 tons, and the river is 635-ft. wide. One of the engines now installed drives the ferry fully laden across the river in approximately five minutes.

As will be seen from the illustration, the two sets are arranged in tandem and are coupled through hand operated friction clutches to a worm reduction gear which reduces the speed to 31.5 r.p.m. Between the reduction gear and the chain wheel an emergency slipping clutch is provided which comes into operation

only if the hull or chain meets an obstruction during the passage across the river.

The two engines are provided so that one may act as standby to the other, for it is very necessary that there should be no interruption in such an important service. Reversing is effected directly on the engine by the simple procedure of moving the cam which

actuates the fuel injection pump through the required angle, when the engine can be started up by hand in the opposite direction. The two engines with the gear unit are mounted on a fabricated steel bedplate. The gear unit, hand operated clutches and the slipping clutch were manufactured by Messrs. Crofts (Engineers) Bradford, Ltd., and the complete plant was shipped by Messrs. Petters Limited, to the order of their Agents in the Straits Settlement, Messrs. Guthrie & Co., who supplied the complete machinery installation for this vessel to the Penang Harbor Board.



The Petter Atomic Diesel engines installed in Ferry at Penang

SOVIET HEAVY INDUSTRY FOR TEN MONTHS

PRODUCTION of heavy industry for the period January-October, 1934 totalled 16.3 billion roubles, an increase of 27.2 per cent over the corresponding period of 1933. The annual production plan for heavy industry was fulfilled 82.4 per cent by November 1, indicating that the program will be practically carried out in full this year. In the first ten months of 1933 the rate of growth was only 11.1 per cent.

All important branches of heavy industry recorded considerable gains during the ten-month period. Automobile and truck production, totalling 57,510 machines, exceeded the total output in 1933 by 6,700. Tractor production increased by 27.7 per cent over the corresponding period of 1933, 77,300 tractors leaving the conveyors up to November 1. Pig iron and steel output totalled 8,560,000 and 7,800,000 tons, respectively, showing gains of 48.7 and 41.5 per cent. Production of freight cars rose by 61.4 per cent, coal by 23.9 per cent and coke by 40.0 per cent. Non-ferrous metals output continued to show considerable gains over the preceding year. Production of aluminum increased by 244.4 per cent, copper by 9.6 per cent and zinc by 48.1 per cent over the first ten months of 1933.

Considerable increase in labor productivity and lowering of costs of production have taken place during the current year. For heavy industry as a whole labor productivity showed a gain of 14.6 per cent over 1933 and average production costs declined by 5.7 per cent as compared with the average for all of 1933. Substantial economy of means of production, raw materials and fuel has also been effected, particularly in the metallurgical, chemical, tractor and power industries.

During October several of the main branches of heavy industry further increased their rate of production. The average daily output of pig iron rose to 30,900 tons, an increase of 1.3 per cent over September; of steel, to 28,500 tons—a 2.8 per cent gain; of rolled metal, to 20,100 tons—a gain of 2.1 per cent. Coal output increased 4.8 per cent as compared with September, the daily average output amounting to 260,700 tons. Similar gains were made by the machine building industry; automobile output increased 7.2 per cent over September; tractors—4.8 per cent; locomotives—18.2 per cent; milling machines and ball bearings—27 per cent.

Output of the principal branches of heavy industry for the ten-month period and the gains over 1933 are given below:

Product	Unit	Output	% Increase Over 1933
Electric Energy (regional stations)	bill. kw.-h.	10.7	—
Coal	thous. tons	76,723	23.9
Coke	„ „	11,655	40.0
Iron Ore	„ „	17,614	48.9
Pig Iron	„ „	8,560	48.7
Steel	„ „	7,800	41.5
Rolled Steel	„ „	5,419	36.7
Sulphuric Acid	„ „	565	21.2
Superphosphates	„ „	726	24.9
Oil (incl. gas)	„ „	22,566	12.9*
Cement	mill. bbls.	18.6	—
Auto trucks	number	44,165	33.1
Passenger automobiles	„ „	13,345	77.4
Tractors	„ „	77,300	27.7
Locomotives	„ „	739	23.5
Freight cars	„ „	—	61.4

*Per cent increase for oil only.

A considerable growth in production of consumers' goods produced by branches of heavy industry has taken place in the past few years. Production of such items totalled 1.24 billion roubles in 1933 as compared with 931 million in 1932, while production in the current year is expected to reach 1.5 billion roubles. Increases in output for some of the principal items were as follows: Photographic apparatus—from 12,000 in 1932 to 69,000 in 1933 and an expected production of 85,700 in 1934; bicycles—from 128,300 to 132,800 and 275,000 in the current year; phonographs—from 25,800 to 57,500 and 112,200 in 1934; electric lamps—from 32 million in 1932 to 45 million in 1933 and an expected output of 50 million this year. Ten-month production figures indicate that the program for 1934 will be successfully fulfilled for the majority of consumer's goods produced by heavy industry. Among the items produced during the past ten months, were 194,666 domestic sewing machines, 80,790 cameras, 103,471 pocket watches, 84,500 gramophones, 1,962,000 records, 31,853 radio receiving sets (vacuum tube) and 323,630 loud speakers. During October alone 13,400 phonographs, 281,000 records, 4,468 radio receiving sets and 45,547 loud speakers were produced.—*Economic Review of the Soviet Union.*

The Passenger and Cargo Motorship "Canada"

Craft for Far Eastern Service is Built by the Nakskov Shipyard Ltd. of Nakskov, Denmark, for the East Asiatic Company, Ltd. of Copenhagen

ON July 31, 1935, the passenger and cargo motorship *Canada*, built by The Nakskov Shipyard Ltd., left the builders' yard for Copenhagen and arrived there on August 1, having carried out the official trials in the sound north of Copenhagen, where a speed of 17.6 knots was attained; the contracted speed is 15 knots with loaded ship.

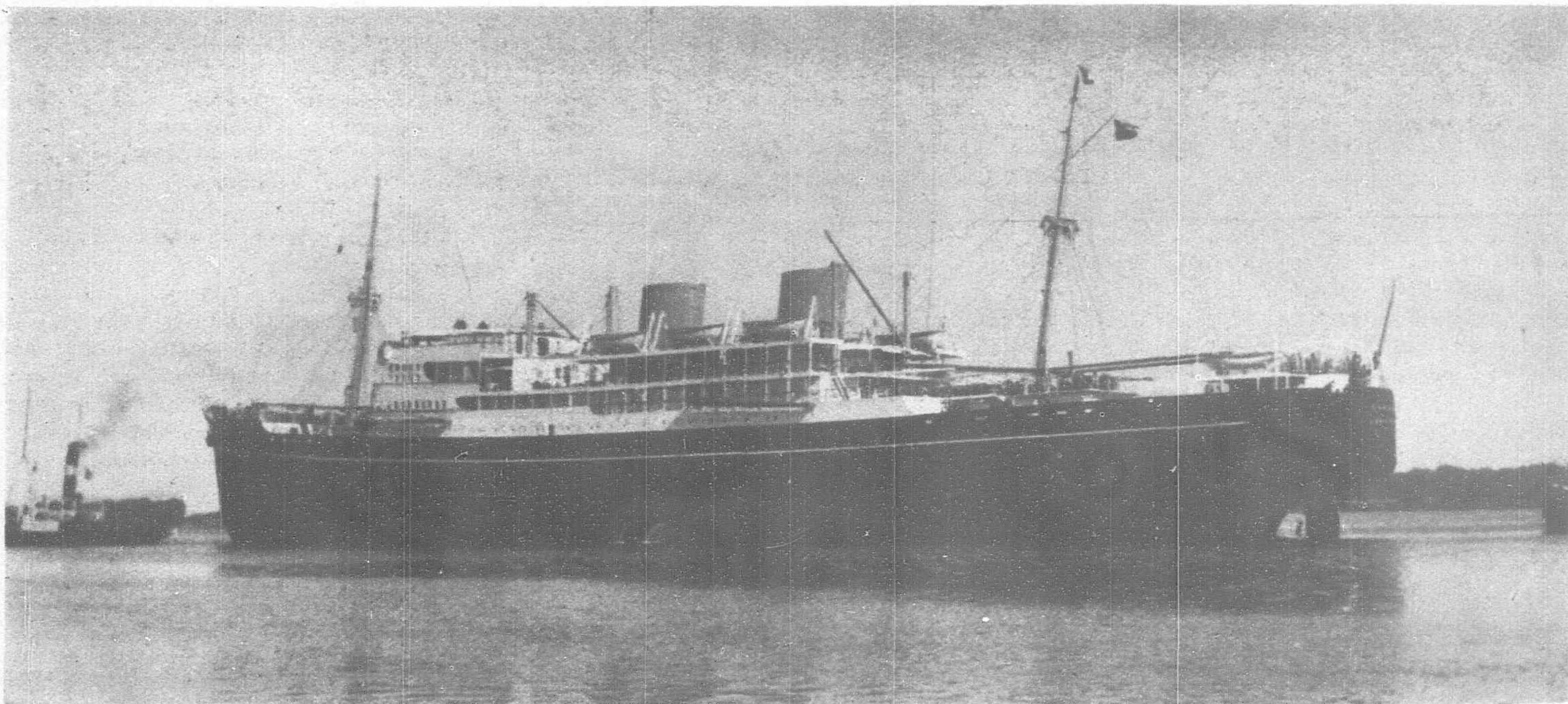
The ship has been built for The East Asiatic Company, Ltd., in conformity with the owners' special requirements for vessels engaged on their regular Pacific route. It has accommodation for 60 passengers, and the cabins and saloons are larger and more comfortably equipped than in m.s. *Amerika* and m.s. *Europa* previously built for this route.

The ship has the following principal dimensions:

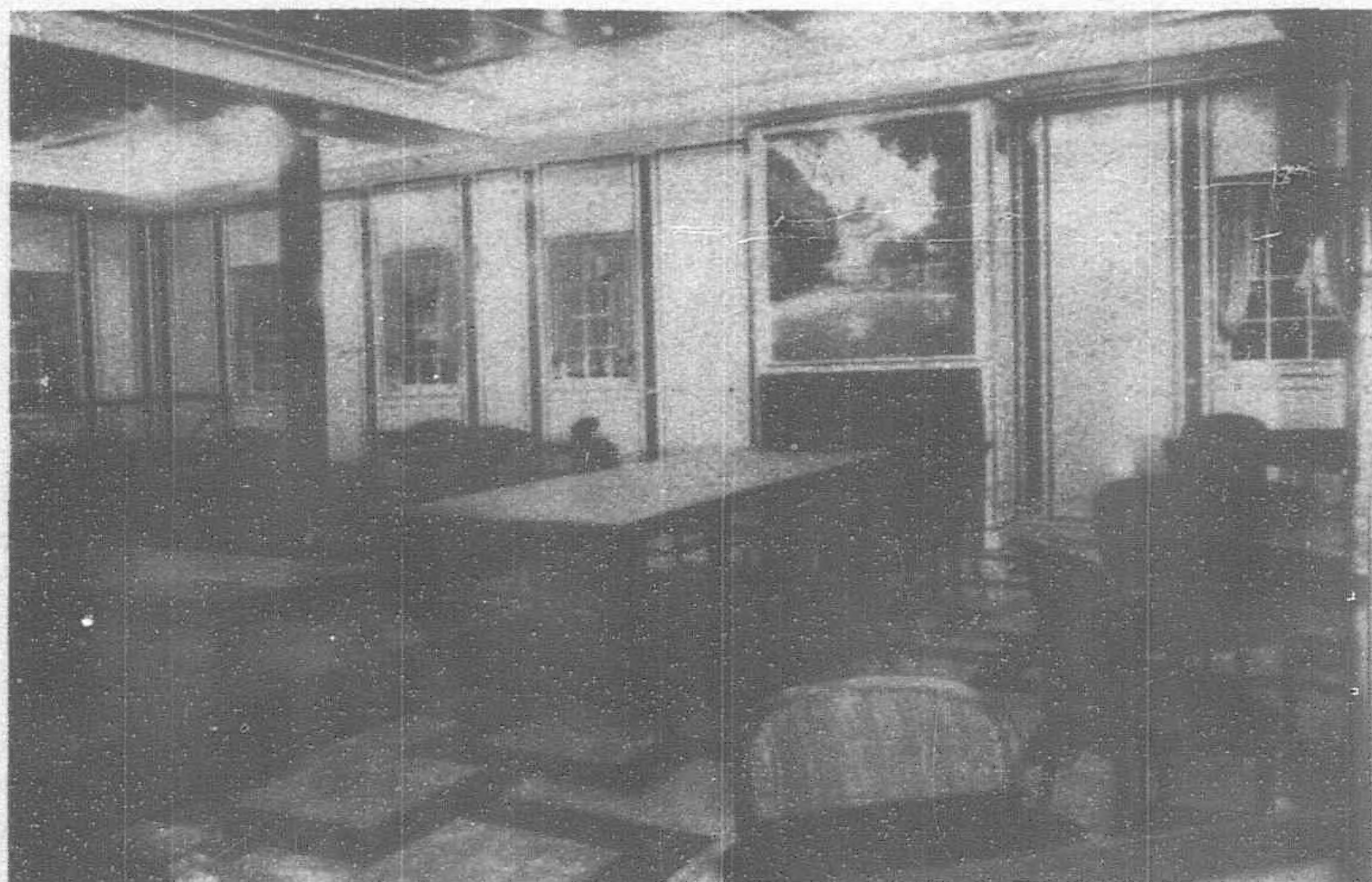
Length b.p.	..	..	..	465-ft. 0-in.
Breadth moulded	..	..	..	64-ft. 0-in.
Depth to upper deck	..	..	..	40-ft. 0-in.
Carrying capacity	..	..	..	about 12,000 tons

The *Canada* has been constructed to Lloyd's highest class and fulfils the rules prescribed by the London Convention of 1929 for the arrangement and equipment of passenger ships. The ship is of the "Complete Superstructure" type with long bridge and forecastle. It has seven watertight bulkheads, all of which are carried through to the upper deck, and double bottom extending the whole length of the ship.

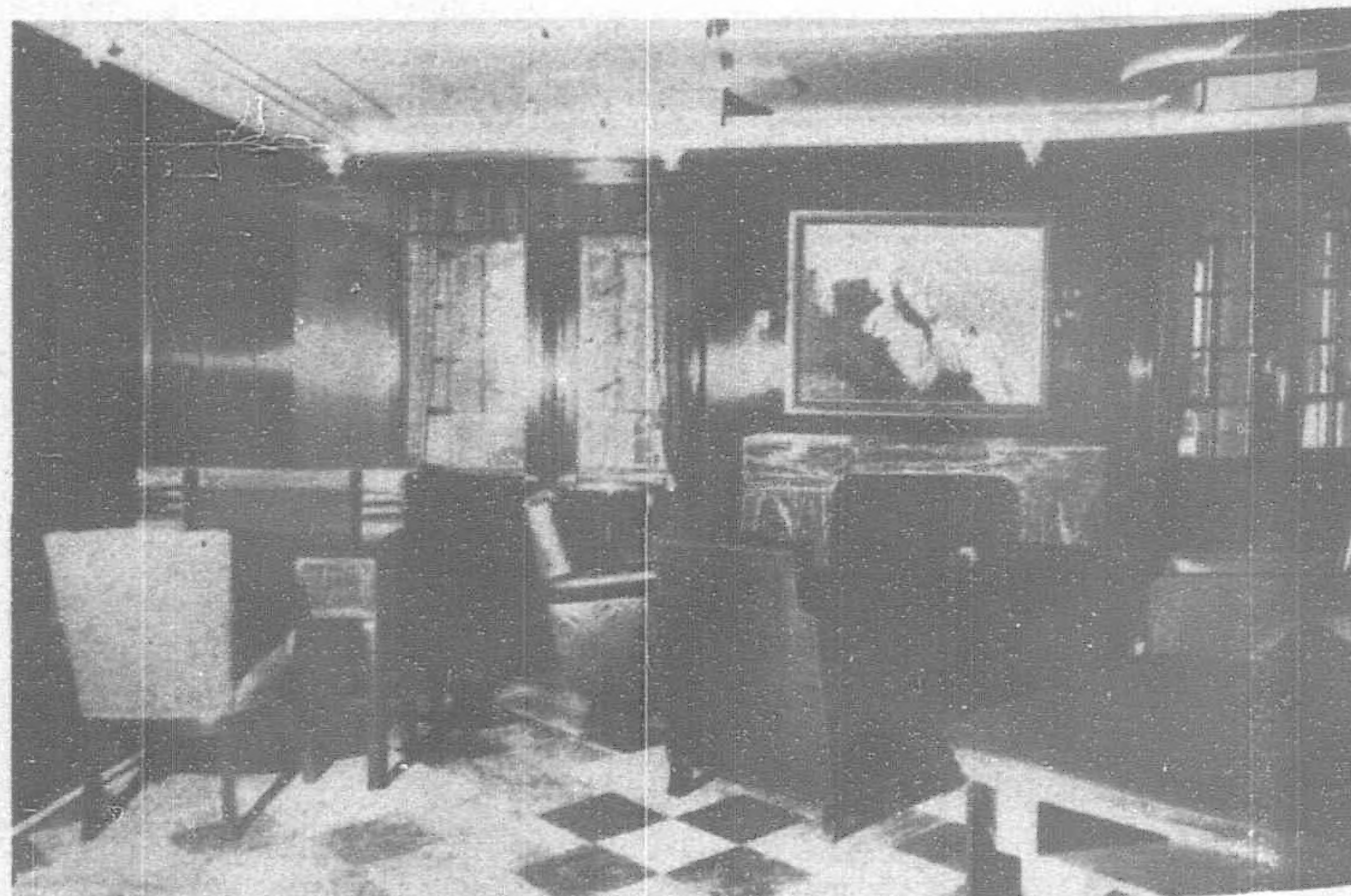
The *Canada* has five hatches, two masts, and eight derrick posts with 17 derricks, eight of which for lifting three tons, eight for five tons, and one with a capacity of 30 tons. There are 16 electric winches, eight of which for a lift of three tons, six of five tons, and two of seven tons, and one seven-ton electric warping winch on the after deck, and an electric windlass, all of Mr. Thomas B. Thrige's manufacture. The Thrige steering gear is of the all-electric type. The ship is built with two steel decks and further with 'tween deck in the Nos. 1, 2 and 3 holds. The cargo space in addition to the refrigerated compartments is 579,000 cub. ft.



The Passenger and Cargo Motorship "Canada" after trial runs



The Dining-saloon of the "Canada"



The Smoking-saloon of the "Canada"

Further, the ship has about 155,000 cub. ft. of insulated cargo space, divided in ten compartments, and furnished with refrigerating plants carried out on the latest principles for carrying fruit, etc. The refrigerating machinery has been supplied by Thomas Ths. Sabroe & Co., Ltd., of Aarhus, Denmark.

The main machinery consists of one Burmeister & Wain double-acting two-cycle Diesel engine of 8,400 i.h.p. Like m.s. *Amerika* and m.s. *Europa* the ship is furnished with two funnels. The auxiliary machinery comprises i.a. four 4-cylinder two-cycle Diesel engines supplied by B. & W.

The accommodation for passengers consists of 28 double and five single staterooms. All the staterooms are very large and airy and furnished with broad and comfortable beds, wardrobes, toilet and writing tables. The double staterooms have their own adjoining lavatories and bath-rooms.

Forward in the bridge deckhouse a large dining-saloon is situated, which amply accommodates 65 persons placed at small tables. The saloon is furnished with chairs and tables in dark polished birchwood, whilst the bulkheads are kept in beautiful light colors. It is with its many windows and high ceiling a light and festive room. The saloon is lighted by ceiling-lighting and bulkhead-lamps. Above the large open fire-place there is a painting of the Fredensborg Palace, painted by Mr. Axel Johansen.

Above the staircase the smoking-saloon is situated forward on the promenade deck, whilst the ladies' saloon and the bar-room are placed just abaft. The smoking-saloon is carried out in dead polished mahogany. With its numerous armchairs, smoking-tables, card-tables, writing-tables, reading-lamps, etc. This room will give the passengers an impression of comfort and a homely feeling. There are three paintings, painted by Mr. H. Riberholt.

The ladies' saloon is carried out with light painted bulkheads. The furniture is in bird-eye wood. There are as well ceiling-lighting as bracket-lamps on the bulkheads. The bar-room is in a marked modern style with polished walnut bulkheads and dead colored windows.

For the entertainment of the passengers there are installed broadcasting-loud-speakers in connection with gramophones in the three saloons, and likewise there is a portable loud-speaker on the promenade deck. The furniture in the smoking-saloon, the ladies' saloon, and the bar-room has been supplied by the firm C. B. Hansen of Copenhagen. A living-room and dining-room for the passengers' children is situated at the dining-saloon. The room is carried out as a modern English nursery.



A Corridor Lounge on the Motorship "Canada"

on board (Refrigerating machinery supplied by Thomas Ths. Sabroe & Co., of Aarhus). The pantry and the bar-room are equipped with large electric refrigerators of "Evercolds" make.

At the after-end of the bridge deck there is a swimming pool for the passengers.

In the after deckhouse a laundry with washing machines, drying machines, calender, and ironing machines is installed, all arranged for electric drive, supplied by Georg E. Mathiesen, of Copenhagen.

The ship is furnished with fire-proof bulkheads and a modern carbonic acid fire-extinguishing plant with a pipe system with smoke-detector placed in the chart-room which automatically shows any formation of smoke, even if ever so slight, in every room of the ship. Owing to the risk of fire all stair-cases in the accommodation are made of steel and brass, and steel structure is used to the greatest possible extent everywhere in the accommodation.

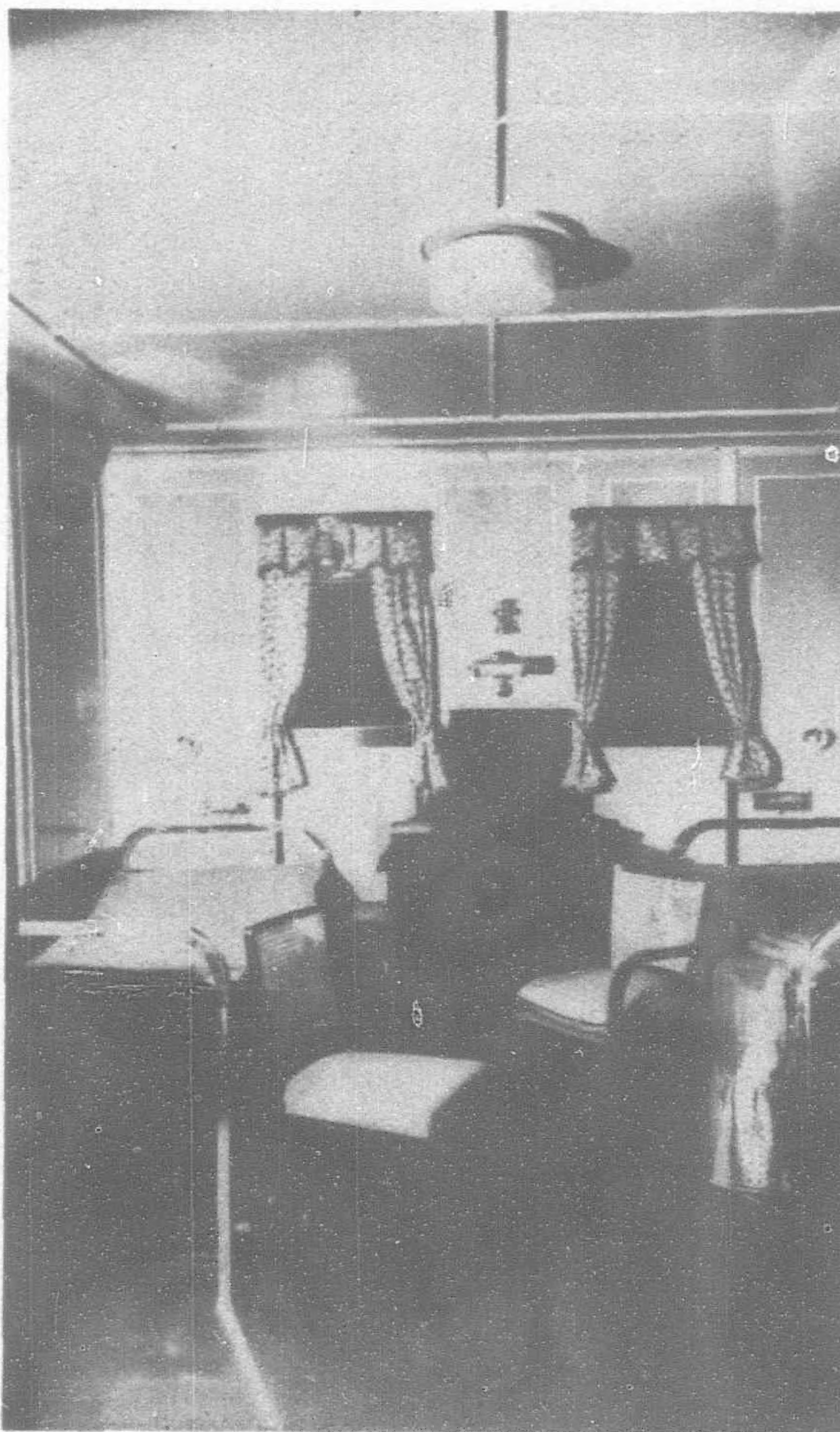
The life-saving equipment is of the most modern kind, and the life-boats are placed under Columbus davits of latest type. The ship is furnished with a powerful wireless station and a wireless sounding apparatus, supplied by Dansk Radio A/S of Copenhagen.

After the trial trip in the sound the ship was taken over by The East Asiatic Company, Ltd., joining their fleet of fast and comfortable motorships.

Rich Coal Field Found in Manchuria

The South Manchuria Railway Co. will dispatch mining experts to the spot three kilometers south of Chingchi station, a noted scenic place on the Peiangchen-Taheiho line, at the report that a vast coal-bed has been found in this region.

A gang of railway workers of the S.M.R., found a rich coal-seam at a depth of one meter there while they were doing reconstruction work. Further trial diggings in the neighborhood, extending for two square miles, convinced them that the region is rich with coal. Officials of the branch of the Harbin Construction Office found, moreover, that the coal in this region is just as good as that of Fushun coal.



Interior of a Cabin on the Motorship "Canada"

Engineering Notes

INDUSTRIAL

KUALA LUMPUR SEWAGE.—A proposal to give Kuala Lumpur a modern sanitary system is being considered. The "Malay Mail" states that a Government official now on home leave is studying the science of sewage disposal with a view to the knowledge thus acquired being put to practical use in Kuala Lumpur on his return.

TOKYO FIRE STATION.—Construction of more fire-fighting boats and establishment of Tokyo's first harbor fire station are contemplated. The *Asahi* says that if the new station is constructed, all the fire boats of the city will be attached to it. At present the harbor fire force is so inadequate that Yokohama fire boats have to assist in case of a serious blaze.

PAPER MAKING IN SZECHUEN.—A four-year plan for the development of the paper industry in Szechuen has been introduced by the Reconstruction Bureau. Each mill is to have a subsidy according to its output. Eight paper mills in Szechuen will shortly be formed into one large mill for making papers according to modern methods. The mills will be under Government inspection, and a school is to be established for teaching the trade.

HUAI RIVER CONSERVANCY.—Strenuous efforts are being made by the Kiangsu provincial authorities for the conservancy of the Huai River. Funds amounting to \$7,000,000 have been raised and 160,000 workers enlisted. It is estimated that, upon completion of the task, about 5,000,000 of fertile land will have been reclaimed. The first stage centres upon improving the channel between Yangchuanchen, Huaiyin and Taotzekou, for a distance of 170 kilometers. The upper reaches will follow the old bed of the Yellow River, but for the lower part a new outlet channel to the sea will be dredged.

SODA PLANTS FOR JAPAN.—The Japanese soda industry has been able to greatly consolidate its position as the result of activity in the rayon and other industries. The Japan Soda Company, known as the N.S.K., has in consequence decided to found a sister institution, to be called the Kyushu Soda Company, with a capital of Y.10,000,000. A factory will be erected near Kokura, Kyushu, to manufacture 50,000 tons of soda ash a year, of which 30,000 tons will be refined into caustic soda. The Tokai-Showa-Tsurumi soda bloc is also planning to found another manufacturing company, namely, the Shikoku Soda Company, with a new plant in Kyushu.

FLOUR MILLS FOR KOREA.—Another Korean development is expected from the Japan Flour Mill Co., which has decided to erect a plant at Jinsen to take advantage of the growing Korean demand for wheat flour. Mechanical equipment of the Sunarachi plant in Honjo, Tokyo, will be transferred to the new site, since the company has too much capacity here. The Jinsen mill have a monthly capacity of 1,000 barrels. There are only two flour mills in Korea at present, the 500-barrel Seoul plant of the Hokoku Flour Co. and the 300-barrel Chinnampo plant of the Manshu Flour Co. Hokoku Flour is planning a 1,000-barrel plant at Chinnampo. It is said that the Taki Fertilizer Co. of Osaka is planning to put up a fertiliser plant at Gunzan, Korea.

KWANGTUNG IRON AND STEEL SCHEME.—The Kwangtung Iron and Steel Works, for production of pig-iron, rails, bars and other steel products, as well as various by-products, is part of a comprehensive development of the resources of the Province, which has been going on over a period of ten years. The movement has necessarily included improvement of transport and communication facilities, and it is expected that a large portion of the output of the proposed plant will find a ready use in the building of highways and railroads projected or under construction. The scheme was drafted by a foreign firm. For initial operation, the rate of production will be at about two-thirds the capacity of the plant. The annual output will be 75,000 tons of steels, of which 36,200 tons will be light products and 38,800 heavy products.

RAILWAYS

SOVIET RAILWAY TO MONGOLIA.—The Soviet authorities have decided to start work at once on a 400-mile railway, linking Urga, Outer Mongolia, with Chita, on the Trans-Siberian Railway.

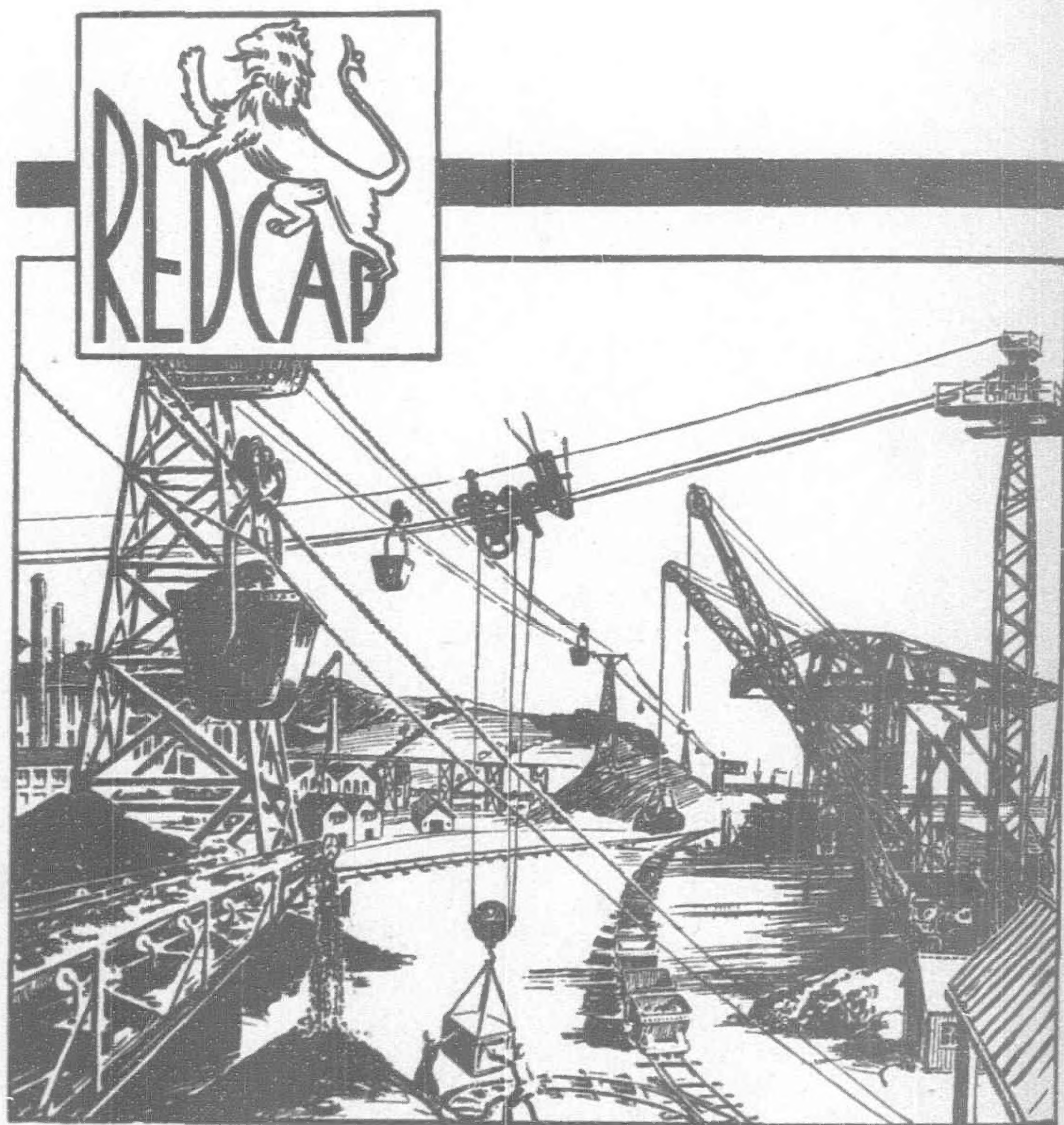
NEW STATION FOR DAIREN.—A new station is to be constructed at Dairen for the South Manchuria Railway at a cost of Y.3,000,000. Though it will have many Western characteristics, it will have Manchurian ornamentation. The station will be a three-storeyed building, in which the traveller will obtain all his requirements except sleeping accommodation.

KANSU RAILROAD EXTENSION.—The Lunghai Railway is to be extended from its terminus at Sian, Shensi, to Lanchow, Kansu. The Railways Ministry has begun survey work on the project.

CHINESE EASTERN RAILWAY.—With the unification of Manchuria's railway network, military as well as regular freight and passenger trains leaving Dairen will be able to make the journey to Harbin as early as August, and probably before the year ends, to Manchuli, on the west, and Pogradichnaya (Suifeng), on the east. A gang of 2,000 railway workers is narrowing the five-foot gauge of the C.E.R., to conform with the standard S.M.R. gauge of 4-ft. 8.5-in. The total length of the C.E.R. is approximately 1,726 kilometers.

ELECTRIFICATION IN JAPAN.—Engineers are drawing plans for the electrification of the entire Tokaido trunk line of the Japanese Government Railways, to be completed in five years at a cost of Y.50,000,000. Electric trains, operating at an average speed of 60 miles an hour, would cover the distance between Tokyo and Shimonoseki in about 11 hours, it is planned. Electrification would reduce the dead weight of coal tenders and water tanks, enable faster pickup, reduce noise and eliminate smoke.

The Japanese Government Railways is to spend £350,000 on the electrification at 1,500 volts D.C. of the Funabashi-Chiba section of the Chobu railway.



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